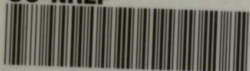
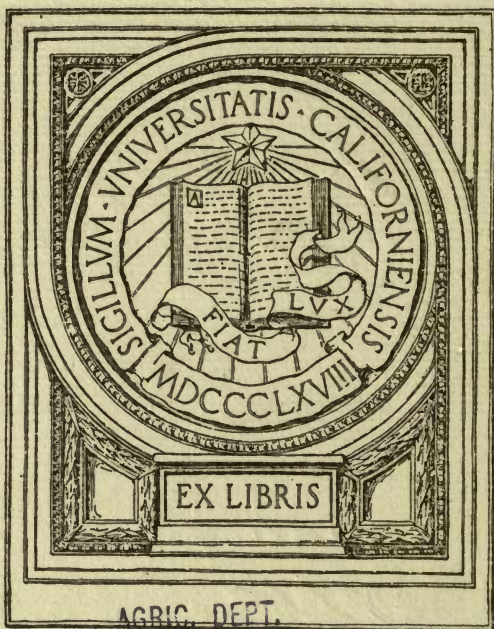


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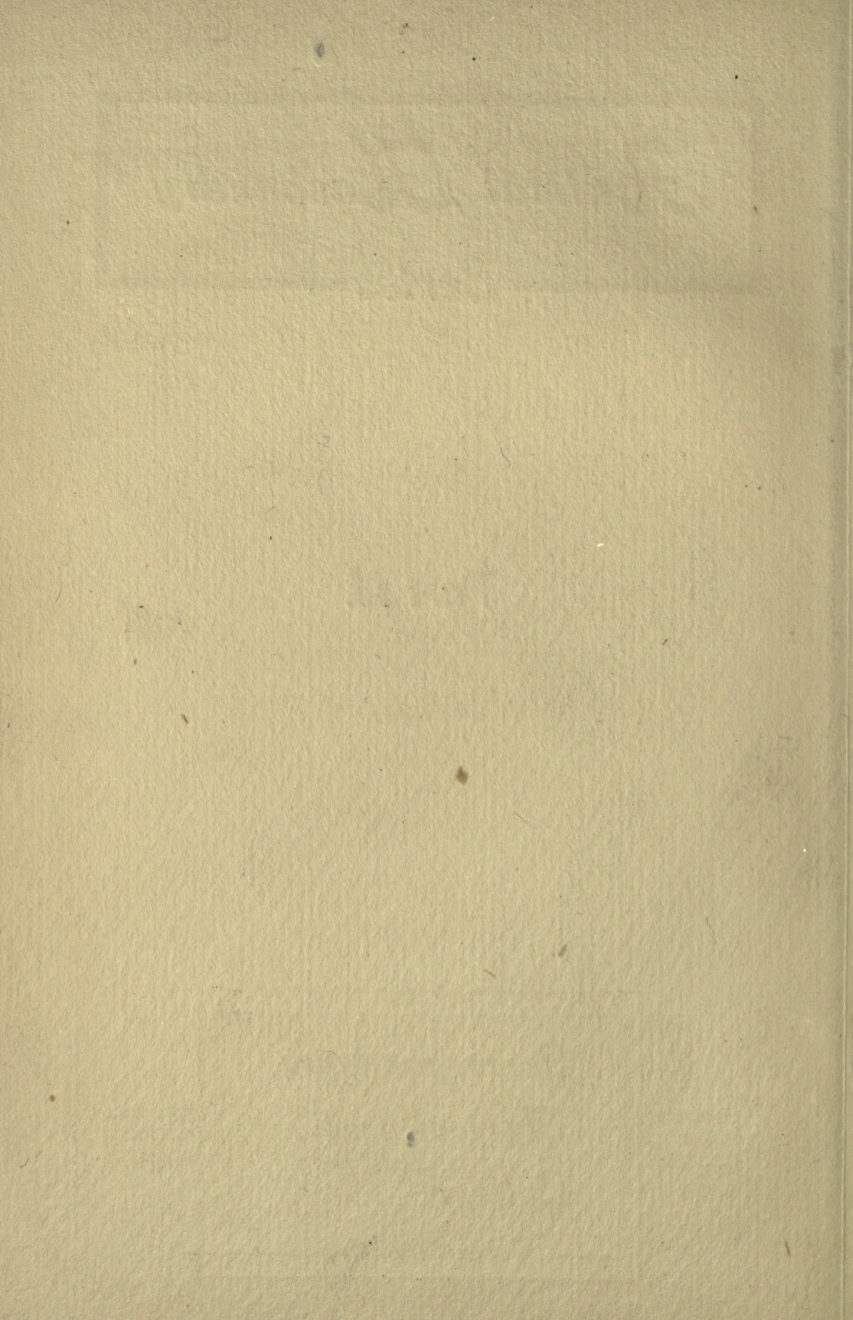
Animal Husbandry *Series*

Part II.

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Sioux City, Iowa



ANIMAL HUSBANDRY SERIES.

PART II. NO. I.

LECTURES

ON

Live Stock Judging

AND THE

History, Development and Characteristics of the
Various Breeds of Live Stock

BY

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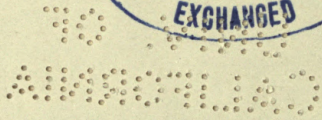
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LECTURE I.

ORIGIN AND DOMESTICATION OF CATTLE.

All hollow-horned ruminants, or descendants of such are classified under the general term oxen, the generic name of which is *Bos*.

The subordinate groups included under the generic title *Bos* are:

1. *Ovibos*—musk ox.
2. Bubaline group—buffalo of Asia and Africa.
3. Bisontine group—yak of Thibet and European and American bison.
4. Bibovine group—the gaur, gayal, and several allied Asiatic forms.
5. Taurine group—common domestic ox. Two forms are recognized—the humped cattle, known as the *Bos indicus*; this, under the common name of Zebu, is the domestic ox of Asia and Africa; all other cattle are classed as *Bos Taurus*, and it is to this group that the domestic ox of Europe and America belongs.

The Zebu, or humped ox, is indigenous to Asia; and its original form is unknown. It is used for purposes of draught, for riding, and to some extent for food, though the religious views of the Hindoos prevent them from eating beef as we do. This species is of no direct importance to us.

The *Bos Taurus* is the species in which we are interested, for it is to it that our cattle belong. The exact origin of this species has given rise to more or less dispute, but modern writers are inclined to consider the *Bos primigenius* (an extinct form), as the ancestors of all our domestic breeds. This animal is described by the early Roman writers as being "great in strength and great in swiftness," and as approaching the size of elephants, but of the form of the bull. These animals roamed wild in the forests of practically all continental Europe and Great Britain, and while they were extraordinarily fierce and wild, it is known that they were domesticated in pre-historic times, for remains of an

unquestionably domesticated form of the *Bos primigenius* have been found in the fossil remains of the lake dwellers of Switzerland. The fossils belong to the Neolithic period, long anterior to historic times. The exact characteristics of the original type is largely a matter of conjecture, but it is certain, from the fossil remains, that the animals were of an enormous size.

From the original *Bos primigenius* numerous varieties sprung, and from these (one of which is sometimes classed as a distinct species, the *Bos longifrons*), many of our domestic breeds have sprung. There seems to be good reason to believe that the *Bos longifrons* was only a stunted domesticated form of the *Bos primigenius*, and hence we are justified in considering the *Bos primigenius* as the original ancestor of all our modern breeds.

Of the precise modifications which took place in the original form, under domestication, we have no authentic records. It is known, however, that the extreme size, and general coarseness of bone and flesh, were reduced probably by artificial selection. The wild white cattle of England are worthy of mention just here, for they are known to be the nearest in structure to the original wild cattle, of any living forms. Several of these herds of wild cattle still exist in England. They have been bred pure for several hundred years, and as the herds have never been large, the close in-breeding necessarily resulting, has brought about a reduction in size, fineness in bone, and a very serious reduction in the rate of increase. In the essential features of the bony framework, however, they are still the nearest to the original wild forms of any animals known. Some writers claim that the original *Bos primigenius* was black and that the wild white cattle of England must be the descendants of animals that were domesticated, or semi-domesticated, for a time. They cite the white color, and the occasional tendency to hornless specimens, in proof of this view, for it is generally believed that a tendency to appear in the polled form could have been established only under domestication. Other authorities claim that the original form was white and that the park cattle (for these wild white cattle are now kept in parks), are the direct descendants of these. It is the existence of this belief which has given rise to much prejudice against white in cattle, for it is believed to be a tendency to

revert to the primitive form—always objected to by breeders; and it has also been claimed that white animals are more delicate than those of other colors. (This claim is contradictory, for it is well known that wild forms are hardiest.)

The wild white cattle have no economic importance, and are of interest only in so far as they are in a manner connecting links between primitive and modern forms.

From the earliest times of which we have any record, the wealth of nations has consisted in large part of cattle. The very origin of the word pecuniary lies in the Latin word *pecus*, referring to cattle, which were in ancient times used as money. The earlier peoples were pastoral, and simply herded the flocks and herds, and lived on the milk and flesh alone. The increase of population rendered it necessary to seek new pastures, or increase the production on the available land. This was done by breaking the ground and raising forage crops; and the ox was used as a beast of draught, and this soon became the chief mission of cattle in the more densely populated countries. The cows were kept for milk, the steers were worked until they were 7 or 8 years old, and were then fatted off and sold. This was the general policy followed until the beginning of the 19th century, and in some portions of England the use of oxen, to some extent, on farms was practiced even later.

The superior adaptability of horses to the various labors of the farm were rapidly becoming recognized even in the latter part of the 18th century, and an increased demand for good beef (due in part to the increase in population, and in part to the general prosperity of the people), gave rise to a tendency to develop steers into beef, instead of using them on the plough. This led men to seek for early maturing animals of beef producing tendencies.

The general stock at this time (1740-1800) was coarse in all breeds. No definite line of improvement had been taken up. Breeds were many in number, both in Great Britain and on the continent, but the principles of breeding were but imperfectly understood, and artificial selection had accomplished but little. At this time, about 1750, a breeder entered the lists, whose work gave a marvelous impetus to animal husbandry. This breeder was Robert Bakewell, and so far reaching has been the result of his work, that a sketch of the man is of special interest.

He was born in 1726 of respectable parents; his father was an agriculturist, well advanced in agricultural lines, and men of the family had repeatedly held positions of responsibility and honor in the Government. Bakewell himself entered on agricultural work with enthusiasm. He was well educated, an anatomist of skill, was fairly well to do, and possessed the faculty of being able to shape a definite ideal in his own mind, the persistence necessary to the accomplishment of any great work, and the ability to select animals approaching the nearest to his ideal. He was the first to breed for a definite type, and his aim was a strictly utilitarian one. He desired to produce sheep and cattle that would produce the greatest amount of prime flesh at the earliest possible age, and to produce cart horses specially suited to perform heavy work. His knowledge of anatomy was a great aid in his breeding, for he was enabled to see the correlations between form and function. In his breeding operations he depended solely on individual merit and bred "the best to the best," regardless of family relationship. As he began with the best animals he could select, his policy soon led to close in-breeding. The results, in all probability, were better than had been hoped for. The cattle of that day were coarse and slow in maturing; close in-breeding refined them in bone and in general conformation, and also led to earlier maturity. Long continued, it leads to degeneration and sterility, but used as Bakewell used it, it proved a powerful factor in improving the coarse type of stock of that day; and the concentration of the blood of animals showing desirable characteristics, gave his animals strong prepotency when crossed with animals of the common type. Such in brief was his work. He effected notable improvement in the long-horned cattle, Leicester sheep, and English cart horse; but his claims to fame rest upon the principles of breeding he established. He brought order out of chaos, and his pupils have produced our modern types of live stock.

In conclusion, we see that the *Bos taurus* is the only species of ox of direct importance to us; that it is descended from an extinct form, the *Bos primigenius*; that the process of domestication has extended long beyond historic periods; but that real improvement by artificial selection has come chiefly in the last 200 years.

LECTURE II.

CLASSIFICATION OF CATTLE.

In the preceding lecture we discussed, to some extent, the scientific classification of cattle. Another classification, based on the uses to which cattle are put, divides them into three classes: Beef, Dual-Purpose, and Dairy.

As cattle are kept at the present time, simply to supply food for man, a clear understanding of the food value of meat and milk is essential to a knowledge of the different classes given above.

Amount of Different Ingredients and Fuel Value in One Pound of Whole Milk, 3% Fat, Skim Milk, and Sound Beefsteak:

	Protein.	Carbo- hydrates.	Fat.	Energy value.
	lb.	lb.	lb.	Calories.
Whole milk -----	.0369	.0542	.0325	306.6
Skim milk -----	.0374	.0542	.01067	174.1
Beefsteak -----	.1800	----	.120	841

From the above we see that 3 pounds of whole milk is greater in nutritive value than 1 pound of beefsteak, and while the beef raiser does well to secure 2 pounds gain per day, or 730 pounds per year, the dairy cow will return from 7,000 to 12,000 pounds of milk. Lawes and Gilbert have shown that the ox, while gaining at the above rate, yields but one-sixth as much in nitrogenous substances, but one-sixth as much in mineral matter, and practically the same amount of fat as the cow giving 7,000 pounds per year. It is clear that the cow gives the greatest and most rapid returns.



Fig. 1. Shamrock. Champion Fat Steer, Chicago International, 1902.

The results of numerous experiments show that it requires from 10 to 13 pounds dry matter per pound gain in the beef animal when fattening, and results at the Cornell Station show us that but 1.04 pounds of dry matter is required to produce 1 pound of milk. Since 3 pounds of milk are more than equivalent in food value to 1 pound of beefsteak, the cow produces as much nutritive material for man from 3.12 pounds dry matter, as the ox does from 10 to 13 pounds dry matter.



Fig. 2. Jersey Cow, Ida Marigold, Champion Cow at World's Fair.

The foregoing shows that the dairy cow is a more economical food producer than the ox, and this is still further emphasized by the conditions prevalent in densely populated countries. In Austria, Holland and Denmark, the ox has no place. Men must utilize all resources in the most careful manner, and the dairy cow is their chief reliance.

Notwithstanding the advantage the dairy cow possesses as an economical food producer, the cost of labor, and the presence of cheap feed in the United States, makes beef raising the preferable occupation of a large proportion of our people. Beef is a heartier food than milk and more concentrated; men relish beef, and will have beef, and so long as prices remain high enough to render its production profitable, beef will be produced.

The dual-purpose animal fills a place between the extremes, and is specially adapted to localities where labor is reasonable in cost, but where feed is too costly to permit of the maintenance of a cow for an entire year, for the sake of the calf alone. She is calculated to pay her keep in milk, and to produce the calf as an extra profit. In order that this calf shall be of some value, the cow must possess good beef conformation, as well as milking qualities. The dual-

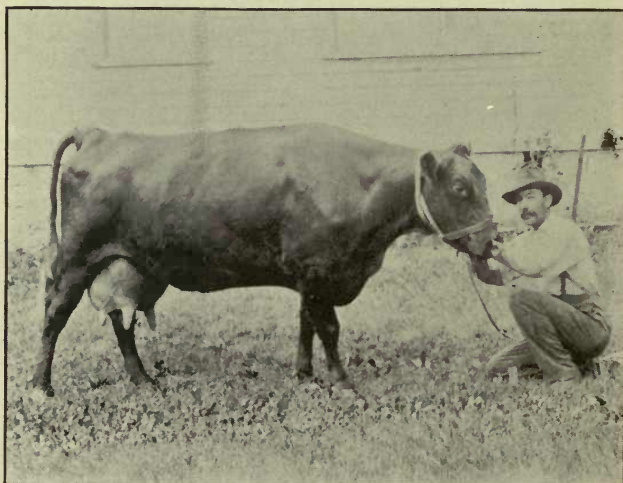


Fig. 3. Red Poll Cow, "Red Tip."

purpose animal is one that will give a profitable amount of milk, and at the same time produce a calf that can be fed profitably for beef.

In conclusion we see that the beef animal is adapted to the less highly intensified conditions; that the dual-purpose animal fills an intermediate position; and that the dairy cow is especially adapted to the most highly intensified conditions where men must utilize all resources or starve.

LECTURE III.

BEEF CATTLE.

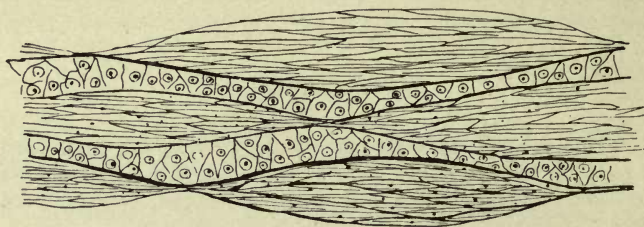
From the earliest times the flesh of cattle has been used as food for man, but the general use of beef for food, as we now know it, has developed within the last two hundred years.

The composition of beef, given in the preceding lecture, shows that it is an extremely concentrated food. It is also easily digested—more so than pork or mutton, or most of the vegetable foods—and of the food nutrients it contains, practically all are available, so far as the protein constituents are concerned. Of the fat, about 90% of the total amount present is available. These two factors—the high availability of nutrients present, and the ready digestibility of beef—are factors that have been potent in extending its use as an article of food.

In addition to this, beef is rich and tempting to the eye and to the palate, and has a more stimulating influence upon the consumer, than any amount of vegetable foods. Horses that are trained for extreme trials of speed are fed almost wholly on oats, for it has been found that these not only furnish the nutriment in a concentrated form (thereby relieving the horse of the burden of a distended abdominal cavity), but that they also possess a stimulating principle, which renders the horse better capable of extreme efforts. In the same way, beef is a desirable food for man, and for the same reasons.

The influence of a liberal supply of meat, particularly beef, has been clearly shown in the disposition and characteristics of beef-eating peoples. Secretary James Wilson well says "The beef eaters rule the world," for Great Britain and North America, whose people are beef eaters to a degree

which amazes southern nations, are the ruling powers of the world, and it is conceded that the more energetic temperament and capability for greater exertion, due to the consumption of beef, has had much to do with the superiority of the Anglo-Saxon people over the other nations.



If a piece of boiled beef be examined, it will be found that it can be pulled apart into a number of fibers, and these in turn are made up of other fibers. The structure of meat is well represented in the diagram given below:

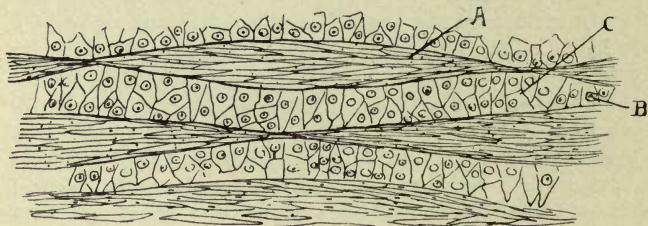


Fig. 4. a. Muscle fibres. b. Fat cells. c. Connective tissue.

The above shows the structure of the muscles, and it is upon the amount of muscular tissue present in beef, that the nutritive value largely depends. It is to the interest of the consumer to demand thick cuts of muscular tissue, interspersed with sufficient fat to render it tender and palatable.

This being true, the butcher has constantly endeavored to secure animals possessing a high amount of flesh, and the feeder and breeder have been guided by that most potent of

all arguments—a financial one—to produce animals possessing a wealth of edible flesh. To secure a maximum of flesh and a minimum of waste has been the aim of the beef breeder since the days of Bakewell, and the conformation and general characteristics of animals that fulfill this end is taken up in the lecture on Fat Steers. Suffice it to say at present, that the efforts of breeders toward this end have built up four leading breeds well adapted to beef production—the Shorthorn, Hereford, Aberdeen Angus, and the Galloway.

LECTURE IV.

JUDGING CATTLE.

Methods of Procedure.

In judging fat cattle it is well to follow some definite plan of procedure, in order that the work may be done rapidly yet accurately and with justice to each exhibitor, or in order that the buyer may form a definite idea of the animal without a loss of time.

The plan followed by many of the most successful judges is about as follows: The cattle are arranged in line. The judge then starts at one end of the line and works over each animal in turn. He approaches from the front, and studies the animal critically, observing the general characteristics of the head, noting whether it is typical of the breed represented; he also notices the manner in which the shoulders join the body, the spring of rib, and the width of the animals in chest and throughout the body. (Fig. 5—No. 1.)

It very often happens that an animal appears wider in the chest than is really the case. This is usually due to prominent shoulders, and the careful judge always notices whether there is a slack heart girth back of the shoulders. Having completed the inspection from the front, he steps to one side—preferably 10 or 12 feet away—and observes the straightness of the top and bottom lines, the low-setness of body and the depth of chest and of body throughout, with particular reference to the depth through the body from loin to flank. The length of rump, width of the hip, and width of thigh are also observed. (Fig. 5—No. 2.) Next from the rear view the compactness of shoulder, spring of ribs, width of loin, smoothness at hook points and width of rump is closely observed; also the width through at the hips and thighs. (Fig. 5—No. 3.)

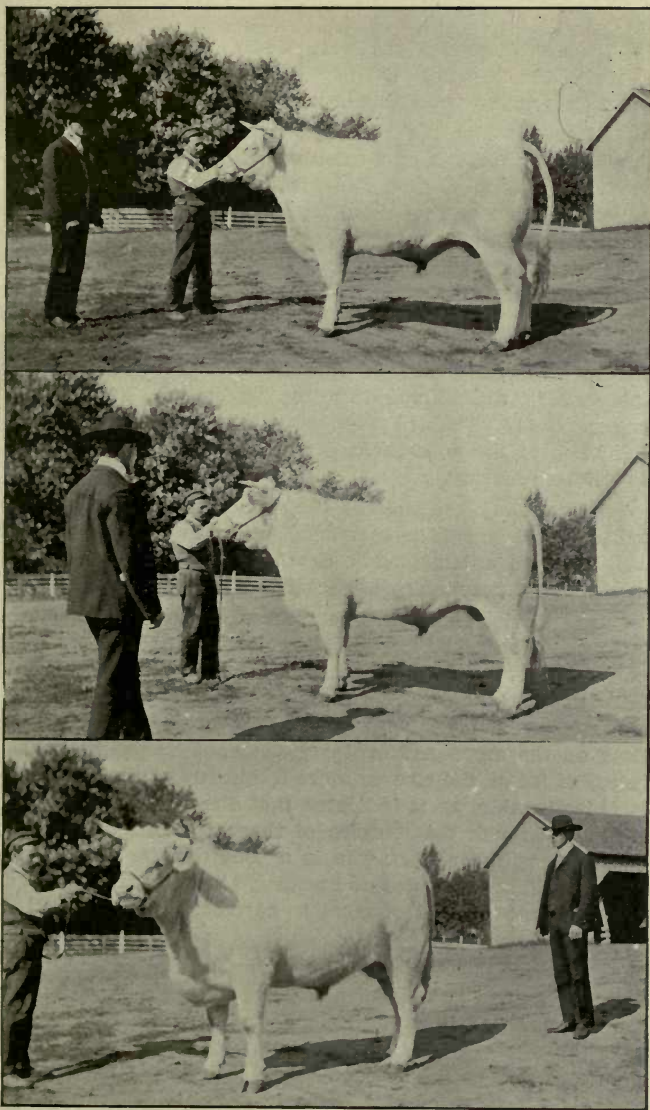


Fig. 5. Judging Positions: Front, Side and Rear.

Besides observing the width in these parts, the degree to which the flesh fills out here is also noted, and the depth and filling of the twist should also be looked to.

After finishing the general survey of the animal, which should be a thorough one, calculated to give one a clear idea of the form, constitution and breed type of the animal, the judge approaches the shoulder, feels the covering of the shoulder, notices its compactness on top, then feels the covering of crops, back, and loin. (Fig. 6.) He next observes the covering of the ribs, and the filling of the flank; and while noticing the depth of flesh over these parts, he also determines, by testing between the thumb and fingers, the pliability and thickness of the skin and the softness of the hair. (Fig. 7.) Good handling quality as exemplified in sappy, pliable skin and fine, silky hair, is important as an indication of the good thrift of the animal, and also foretells its future progress.

In handling the animal the hand should be outspread, and the flesh should appear firm yet mellow to the touch in well fattened animals. The depth of the loin is best taken as shown in accompanying photograph. (Fig. 7—No. 1.)

Soft flabby places are sometimes found in animals that have been long on feed, and these indicate that only fat is present, or that the fat is not intermixed with sufficient muscular tissue to hold the firmness desired. This soft condition of flesh invariably reveals itself first at the foreflank, and later on the crops and center of loins. Patchiness—rolls or lumps of fat on the ribs, or more frequently at the tail head—is objectionable, as it indicates that the fat is not well distributed through the muscles of these portions of the body. Bareness on the ribs or loin is a condition too often found, and a fault in either fat or breeding stock, as it reduces the proportionate amount of meat to carcass.

Having finished the inspection of the animal, the judge steps back, makes a final brief survey, mentally sums up the animal's merits and deficiencies and then passes on to the next, to proceed in a similar manner. In this way he goes over the whole class of animals, though there are invariably a number that are so evidently lacking in merit, as compared to the best, as to require but a brief examination.

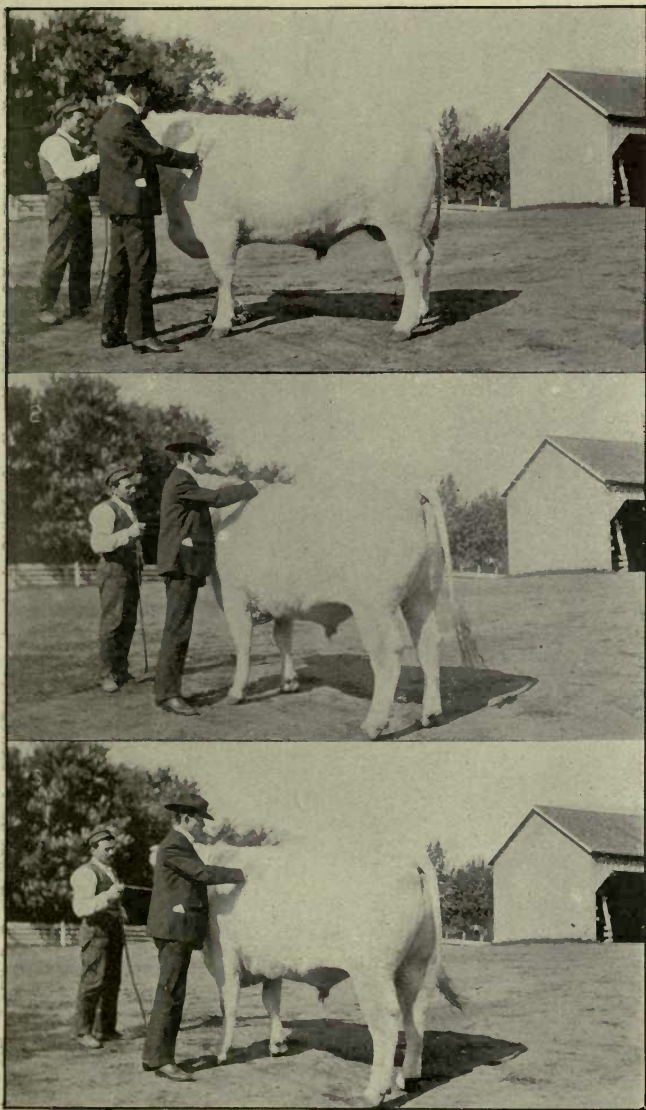


Fig. 6. Examining Shoulder, Shoulder Top and Crops.

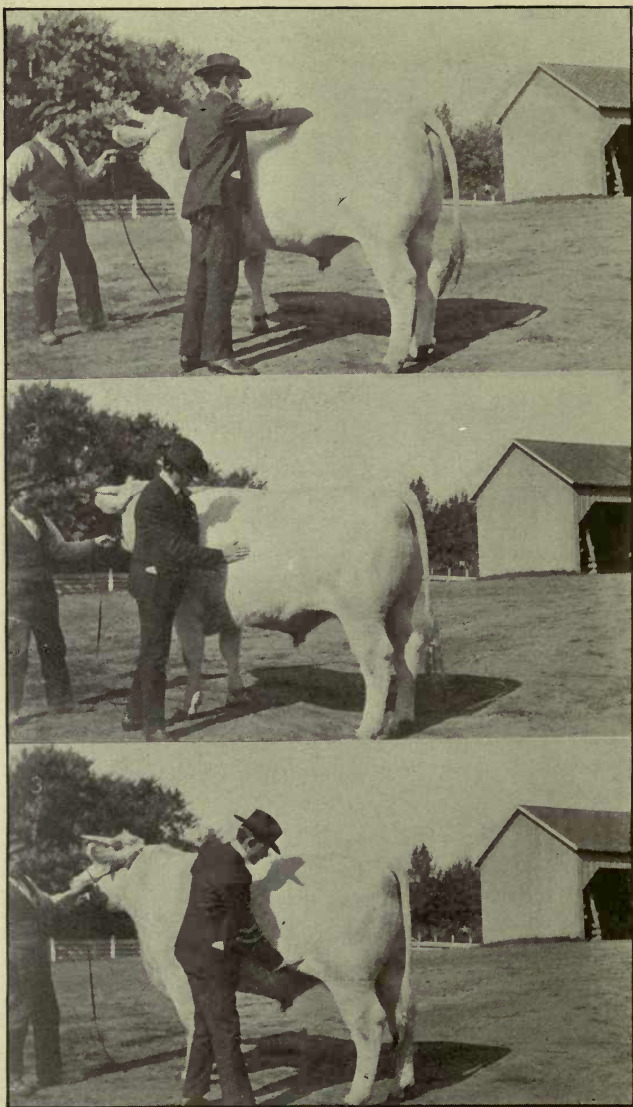


Fig. 7. Examining Loins, Ribs and Hind Flank.

Having inspected the entire class, the judge passes back up the line, sending those of superior merit to the head; and he now begins a more complete and careful comparison of the merits of each animal, until he has chosen the one which most nearly approaches his ideal. This one he sends to the head of the line; the rest he places in order of merit from the first down.

Breed Type is a vexing question at times, and it often-times happens that there are animals in a show ring that are of exceptional merit, yet of markedly different types. In such cases the judge must decide as to which type shall have the preference, and place the rest accordingly, holding to his chosen type. It sometimes becomes necessary to break type, but this is rare and should never occur without ample reasons for such action.

In all work in judging cattle the judge goes about his work promptly, directly, and with an eye to certain things; he never touches the animal save for a definite purpose. In judging breeding cattle the eye is trusted most, and the hand least. In fat cattle the reverse is true.

STUDENT'S SCORE CARD—BEEF CATTLE.

SCALE OF POINTS—FOR STEER.

GENERAL APPEARANCE:		Perfect Score.
1. Weight	score according to age	10
2. Form , straight top line and underline; deep, broad, low set, stylish.....		10
3. Quality , hair fine; skin pliable; dense, clean bone; body covering to be uniform, of a mellow touch, yet sufficiently firm to indicate a large proportion of muscle		10
4. Condition , development of flesh and fat; fat indicated by spinal covering, rib covering, fullness of flank, purse and tongue root.....		10

HEAD AND NECK:		Perfect Score.
5. Muzzle, broad; mouth large; jaw wide; nostrils large	1	1
6. Eyes, large clear, placid-----	1	1
7. Face, short, quiet expression-----	1	1
8. Forehead, broad, full -----	1	1
9. Ears, medium size, fine texture-----	1	1
10. Horns, fine texture, oval, medium size-----	1	1
11. Neck, thick, short, throat clean-----	1	1
FOREQUARTERS:		
12. Shoulder Vein, full -----	2	2
13. Shoulder, covered with flesh, compact on top, smooth	2	2
14. Brisket, advanced, breast wide-----	1	1
15. Dewlap, skin not too loose and drooping-----	1	1
16. Legs, straight, short; arm full; shank fine, smooth---	2	2
BODY:		
17. Chest, full, deep, wide; girth large; crops full-----	4	4
18. Ribs, long, arched, thickly fleshed-----	8	8
19. Back, broad, straight, smooth, even-----	10	10
20. Loin, thick, broad -----	8	8
21. Flank, full, even with underline-----	2	2
HINDQUARTERS:		
22. Hips, smoothly covered; distance apart in proportion with other parts -----	2	2
23. Rump, long, wide, even, tail head smooth, not patchy	2	2
24. Pin Bones, not prominent, far apart-----	1	1
25. Thighs, full, deep, wide-----	2	2
26. Twist, deep, plump -----	2	2
27. Purse, full, indicating fleshiness-----	2	2
28. Legs, straight, short; shank fine, smooth-----	2	2
Total-----		100

LECTURE V.

MARKET CLASSES AND GRADES.

Chicago, Kansas City, Omaha, St. Joseph, Sioux City and St. Louis are the great live stock markets of the United States. Here are situated the largest packing houses, and it is at these points that the value of all cattle is established. Quotations from these central points guide buyers, feeders and breeders in all parts of the world.

For convenience in buying and selling, and in the publication of market reports, cattle have long been separated into certain classes and grades in these markets. The classes are Beef Cattle (used for dressed beef, export and shipping purposes), Butcher Stock (used for the block and for canning and the manufacture of such by-products, as bolognas, etc.), and Feeders and Stockers, and are based on the end which the cattle are intended for. Various sub-classes exist. Under the head of Beef Cattle are included native beef steers, Baby Beef, and Texas Cattle or Rangers. Under the head of Butcher Stock we have Stags, Cows, Heifers, Bulls, Cannery, and Cutters, and Veal Calves. Stockers and Feeders have no clearly defined subdivisions.

Grades have absolutely no reference to the end for which the cattle are intended, but refer solely to the individual excellence of the animals, in form, quality, and condition. The recognized grades are: prime, choice, good, medium, common, and inferior. These grades apply to practically all classes.

A clearer understanding of the application of these grades to market conditions, can be secured by understanding their application to the class, Beef Cattle.

Prime steers must be excellent in proportion, dressing percentage and condition. This means that they must possess the requisite form to carry most of their flesh in the region of valuable cuts, must be fine in bone, free from paunchiness, and that they shall have been so fattened that

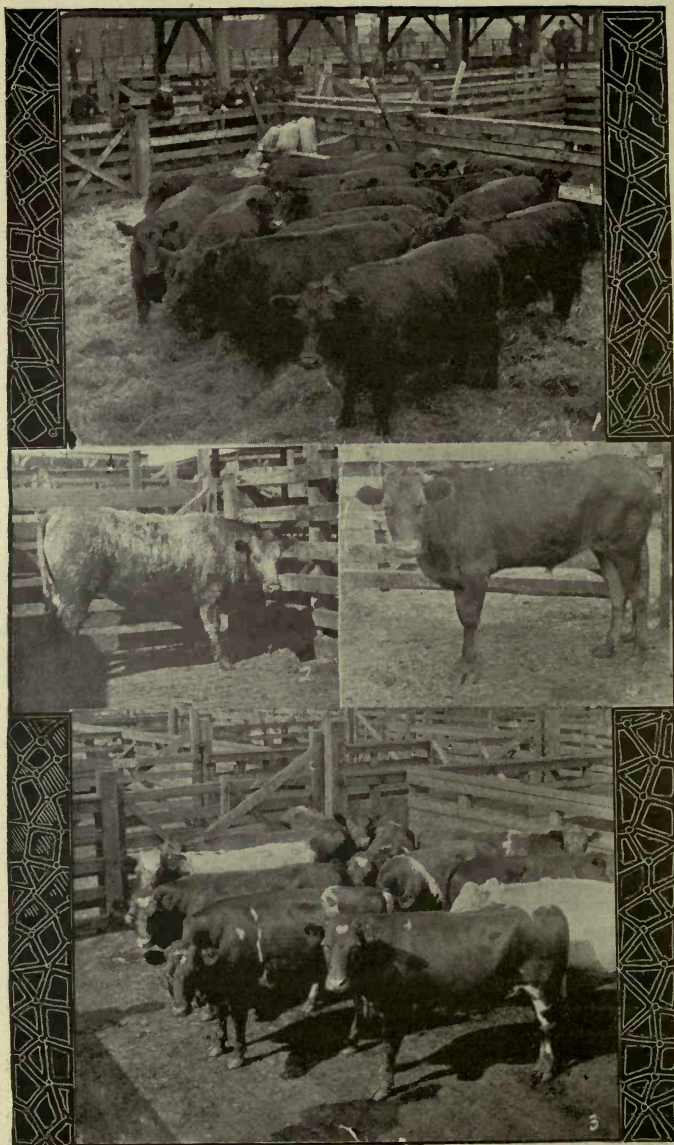


Fig. 8. 1, Prime. 2, Choice. 3, Good. 4, Common Rough Steers.
Bul. 78, Ill. Station.

their flesh will be well interspersed with fat, and therefore tender. This means that they are practically beyond criticism from any practical standpoint.

Choice steers are usually lacking very slightly in quality or condition. A steer lacking in good beef form could never grade as choice, no matter what his quality or condition, for the flesh would not be distributed over the valuable parts. No man can cut a good roast from a narrow-backed, slab-sided steer, no matter what his quality and condition may be. As to whether quality or condition is lacking in choice steers, depends entirely upon prices for cattle and feed. Cheap feed usually brings steers to the choice grade that are deficient in quality, rather than in condition, and vice versa.



Fig. 9. Texas Cattle. Bul. 78, Ill. Station.

Good steers usually fall below the choice grades in the same respects as choice steers fall below prime ones; but they are more often deficient in quality than in condition.

Medium steers are those that lack in form, quality or condition to a considerable extent. Here animals would be classed that are good in quality and condition, but which fail

to carry a high proportion of valuable cuts; and here too go those that are inclined to be slightly deficient in all respects.

Inferior rough steers are the dregs of the class; they are usually lacking in all respects, and particularly in quality, being long-legged, slab-sided, and coarse throughout. They are classed with beef cattle only when the supply of the better grades is limited. Baby beef is prime or choice young beef that has been finished for market at a very early age.

Texas Cattle or Rangers are graded precisely as the native beef steers. It is seldom, however, that prime grades are found among them; and buyers discriminate more or less against them because their flesh is softer, and the per cent. of offal greater, due to the fact that they are only grass fat.

Butcher Stock.

Here the grades are the same as in Beef Cattle, so far as differences between grades are concerned; but of course none of the grades represent equal individual excellence to the corresponding grades of beef cattle, for they are but grades in a lower class. The very best of this class—prime heifers and cows—sometimes sell for the same prices as beef steers; selling, in fact, in the beef cattle class. This only occurs when they are shipped in with steers and are relatively few in number. Stags usually head the butcher stock class; are graded as choice, good, and medium, and usually command higher prices than any of the corresponding grades of heifers, cows, or bulls. They are few in number. In both heifers and cows four distinct grades, prime, choice, good, and medium, are recognized; the same distinctions prevail between the grades as in beef cattle. Heifers always rank above cows of corresponding grades. Bulls are classed as choice, good, medium (or half fat), and bologna bulls. In all butcher stock, no grades are given below medium; and heifers, cows, or bulls, classed as medium and be sufficiently good in quality and condition to allow of the whole carcass being sold over the block as beef. The common or inferior grades of Butcher Stock are graded as cutters and cannery. They are usually inferior in form, and so thin in flesh as to be unfit to sell over the block. Cutters practically correspond

to what would be common butcher stock—just below medium—and in times when the supply of regular butcher stuff runs short, they may be sold as medium grades of butcher stock.

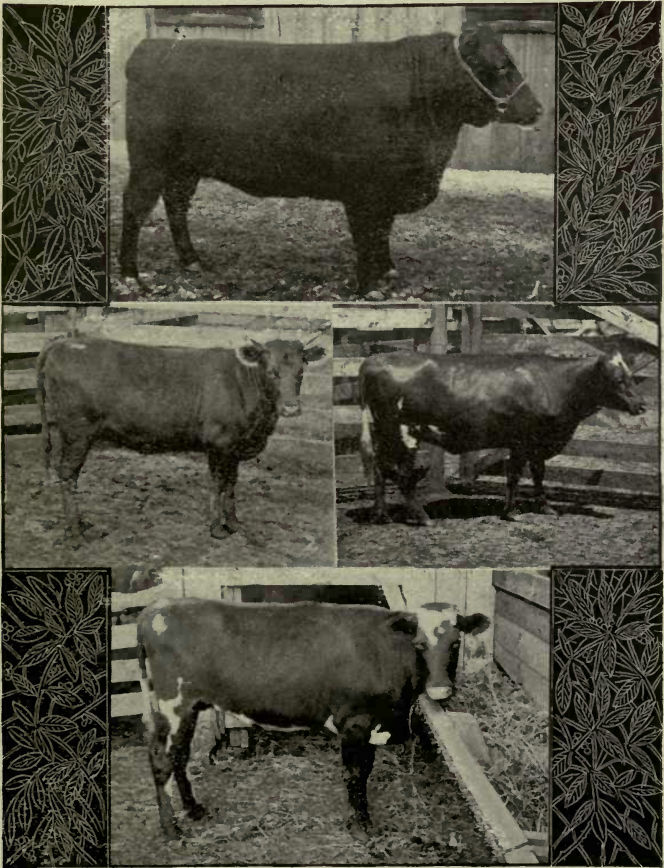


Fig. 10. 1, Prime. 2, Choice. 3, Good. 4, Medium Heifers.
Bul. 78, Ill. Station.

Form is of chief importance, for there is nothing present save the very leanest of muscular tissue, and on the distribution

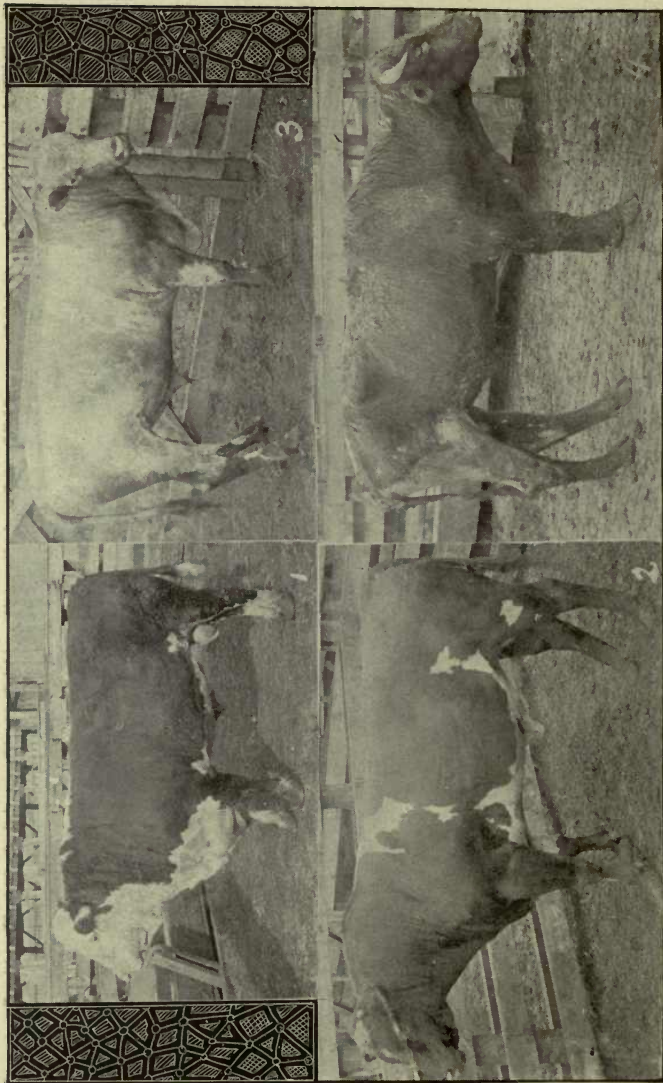


Fig. 11. 1, Choice. 2, Good. 3, Medium. 4, Common or Bologna Bulls. Bul. 78, Ill. Station.

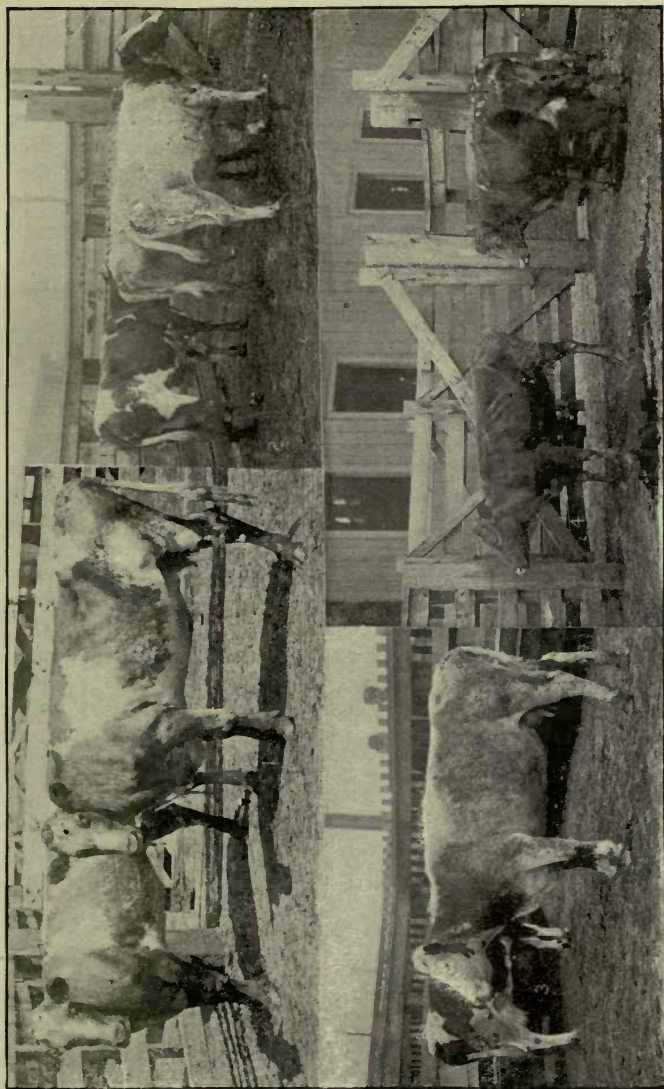


Fig. 12. 1, Good Cutters. 2, Medium Cutters. 3, Inferior Cutters or Good Canners. 4, Inferior Canners, Bpl. 78, Ill. Station.

of this tissue, the value depends. Cutters vary in price according to their individual merit, but the fluctuation is slight; and, in an animal classed as a cutter, there must be a fair sized muscle over the back and loin. This is stripped out and sold over the block. The balance of the carcass is canned, and all animals of any kind that are so flat-ribbed and poor as to have no muscles of any consequence on the back and loin, are classed as canners.

Veal calves complete the list of Butcher Stock class. They are graded choice, good, common and heavy. Fat, and the right age and weight, are the chief factors in grading them. The grades given by Mumford are:

Choice—age 6-8 weeks; weight, 140-160 pounds.

Good—age 6-10 weeks; weight, 110-200 pounds.

Common veals are usually too old for weight, or too young and too light. Heavy veals exceed 200 pounds, and are usually 10 weeks and over.

In conclusion, it should be noted that classes arrange cattle chiefly on the uses to which they are put. That grades depend on the individual excellence of the animals. That prime beef steers are the standard; all other grades merely represent varying degrees of deficiency from that standard. That the dividing lines between the lower grades are only relative; market conditions constantly modify classifications; animals which would class as good grades on a day when receipts were light, and demand strong, are liable to rank a grade lower when the market conditions are the reverse.

LECTURE VI.

MARKET CLASSES AND GRADES.—(Continued.)

Stockers and Feeders.

This class may, with reason, be considered to be the most important of all market classes from the standpoint of the feeder and practical farmer, for it is animals of this class that are purchased and shipped to the farms to convert grain and roughage into a more marketable form. Stockers and feeders are the foundation from which the other classes are built up; they are valued from the standpoint of the producer, while the beef cattle and butcher stock classes are controlled wholly by the interests of the butcher.

Stockers are animals that are of such age and individual excellence that they can more profitably be turned on pasture or carried for a time on rough feed, than to be put directly upon grain feeding. Feeders are those that may profitably be put directly on grain. The dividing line between stockers and feeders is a broad one. Steers that are exactly the same in every respect, may be used by one buyer as feeders, and by another as stockers. While it is impossible to make an absolute distinction between stockers and feeders, age and weight are the chief factors in determining the difference. Feeders are usually at least 15-18 months old, and range from 800 to 1,200 pounds in weight, though the majority are between 900 and 1,100 pounds. Stockers are chiefly young animals, under 18 months, and weighing less than 800 pounds. Steers make up the bulk of the offerings of both stockers and feeders, but bulls, cows, heifers, and calves are also included in this class. Cows and heifers always sell for less than steers of similar grades.

The recognized grades are: choice, good, medium, common, and inferior. A higher grade known as fancy is some-

times quoted, but is unimportant from a market standpoint owing to the scarcity of animals that may grade as such. They must possess the individual excellence of choice feeders and have choice breeding back of them; that is, there must be unmistakable evidence that they are very high grades, or purebreds, of the beef breeds.



Fig. 13. Choice Stockers. Bul. 78, Ill. Station.

Choice feeders are the standard grade; they are animals which will make the greatest gain from a given amount of feed, and place that gain in the region of valuable cuts; they must also possess such quality as will insure their dressing out a high percentage of beef.

Long experience has conclusively shown that constitutional vigor is all important in determining the rate of gain. This is probably due to the fact that the rate of gain depends upon vigorous digestion and assimilation of food. This is governed by a free circulation of pure blood, which in turn

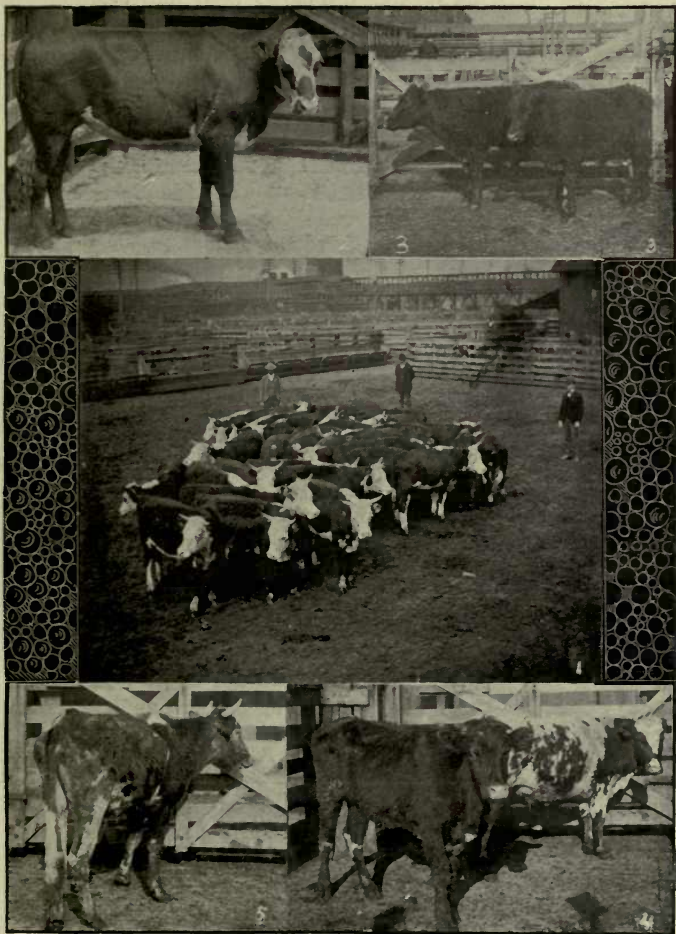


Fig. 14. 1, Fancy Selected. 2, Choice. 3, Good. 4, Common.
5, Inferior Feeders. Bul. 78, Ill. Station.

is dependent upon the manner in which the lungs, liver, and kidneys as purifying agents, discharge their duties.

A deep, wide chest insures ample room for the vital organs, and the importance of this should never be overlooked in buying feeders.

Besides having a deep-wide chest, choice feeders must be low-set, broad-backed, with strong spring of ribs, especially behind the shoulder; the top (back) and bottom (belly) lines should be straight, the flank low, the hindquarters long, level, and deep. The head should be wide, not long, the neck short, and fitted smoothly to the shoulders. The shoulders should not be coarse, nor the hips too prominent; and the limbs should be fine, with dense, clean bone.

In addition to possessing the conformation and quality indicated, they should show a good development of natural flesh; and a quiet, phlegmatic temperament is also important, for it tends to give more rapid gains. A restless, nervous steer, runs the flesh off nearly as fast as a skillful feeder can lay it on. A large, quiet eye is an excellent indication of the desired temperament, and the general behavior of the steers when one is moving among them on foot or on horseback is also a good guide. Choice feeders should always develop into choice steers, and if skillfully fed, they may grade as prime.

Good feeders approximate closely in all respects to choice feeders. They may lack a very little in both form or quality; but, as a general rule, they are more apt to be deficient in quality than in form. They should, by proper handling, make good to choice beeves.

Medium feeders are open to criticism from all points, to some degree; the most noticeable faults are legginess, rough shoulders, and a lack of spring in rib.

Common and inferior feeders are the lowest grades, decidedly deficient in all respects. They are difficult to separate with any satisfaction, but if the most deficient steer imaginable be chosen, he may be classed as inferior; while another equally bad in all respects save constitution, would grade as common. The grades given for feeders apply to stockers as well, and the same differences prevail; but it is still harder to definitely grade them, because they are still more undeveloped.

In conclusion it should be noticed that stockers and feeders are the most important class to the practical farmer. and feeder. That choice feeders represent the highest degree of individual excellence in form and quality. That all other grades are but deviations, in varying degrees, from the most desirable type.

LECTURE VII.

JUDGING FAT CATTLE.

Fat cattle are intended to furnish food for man. The consumer desires tender flesh; the butcher seeks to supply the needs of consumers, and chooses animals for slaughter which will nearest fulfill their needs. The producer is guided, therefore, by the demands of the consumer, made known through the butcher.

To correctly understand the judging of fat cattle it is necessary to understand the skeleton of an ox and the relation of the muscular parts to the same.

Stripped of all coverings of skin, flesh, and membranes, the skeleton of the ox appears to consist—not attempting to describe it with technical accuracy—of a mass of large bones, which shape the head, a vertebral column consisting of many separate bones (vertebra), a bony box formed by the ribs, and known as the thorax, and the fore and hind limbs.

The vertebral column supports the head and thorax, and in turn is supported by the limbs. From the upper side of the vertebra column a number of bones of varying length project upward. These are known as the spinous processes, and it is to these that many of the muscles of the body are attached. The large space enclosed by the ribs contains the vital organs of the body, and it is readily seen that the size of this body cavity, or space for the vital organs, is dependent upon the degree of spring, and depth, of the ribs. Large, vigorous vital organs are desired in all animals, and hence generous size of this body cavity is sought for. A point deserving special notice is the fact that the bones are proportional in all parts of the body. So true is this, that it is possible to determine, by measuring any one bone of the body, the size and length of all the others. If the bones of the legs, or of the head, are large and coarse, all the bones of the body are the same. This explains the objection butchers have to an animal coarse in the head or limbs.

Over this bony framework the muscles which protect the vital organs, and which enable the animal to perform the functions of life—breathing, eating, moving, etc.—are distributed. The hindquarters have many large, powerful muscles, extending from the hips to the hocks; the loin has large muscles on its upper, or external face, and some smaller ones on the internal face; and along the vertebral column, in the angle formed by the spinous processes and ribs are several pairs of muscular formations which bend the back downward or to one side. These extend from about the region of the loin, to the first three large spinous processes of the back, while a portion of one pair of these muscles extends into the neck.

The muscles of the fore limbs are such as the animal needs to move with, and while similar in many respects to the muscles of the hindquarters they are not so extensive. The region of the neck also has some very large, powerful muscles.

Careful investigation has shown that those muscles which are most used, are coarsest in fibre, and toughest for human consumption. On the other hand those least used are finest in fibre, and most tender. Thus it is that the muscles of the neck are coarse, tough, and undesirable for food. Those of the fore limbs but slightly less so, while those of the hindquarters, back and loin, furnish the most tender cuts.

The foregoing explains the reason for the high value placed on the cuts from the back, loin and hindquarters. In the city markets the carcass is divided into certain parts, as shown in the accompanying chart, and the value of the parts above mentioned is triple that of the other portions of the body. Since these are the valuable portions, it is but natural that the butcher should seek for animals possessing a high proportion of valuable cuts. He finds this in animals that possess certain definite characteristics.

A broad back, and long, wide, hindquarters, afford greater space for flesh carrying, and greater muscular development is invariably associated with such form. The butcher is, therefore, able to estimate the amount of valuable meat present from the width of back and hindquarters and the filling of flesh in these parts. The forequarters and lower parts of the body furnish less valuable meat. He, therefore,

prefers to secure animals with a minimum development in these parts; coarse, heavy bone in the head and limbs means a corresponding development of bone and is usually associated with a heavy skin and coarse flesh throughout, and he, therefore, desires to secure animals fine in bone.

The above points may be illustrated by a specific example. Suppose a butcher buys a 1,200-pound steer at 6 cents per pound. Total cost, \$72.00. The animal dresses out 60 per cent., or 720 pounds of beef. He must sell this 720 pounds for an average of 10 cents per pound to come out even, to say nothing of his labor. We will estimate that the

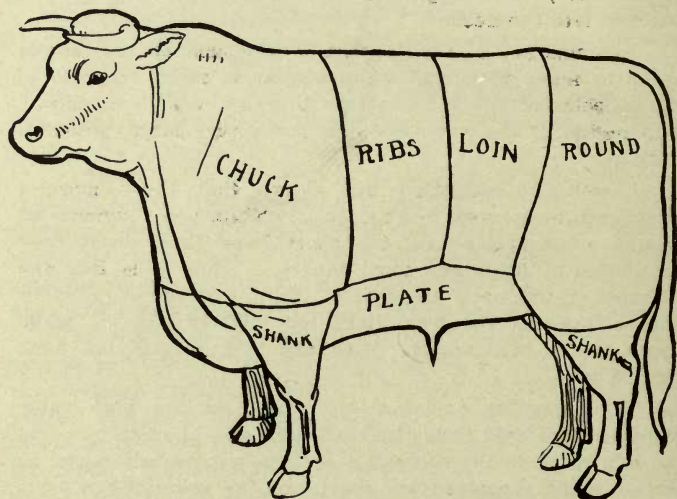


Fig. 15. Diagram Showing the Location of Cuts.

steer is of such a nature that the cuts weigh and sell as follows:

Ribs—	155 pounds at 14c	\$21.70
Loins—	115 pounds at 20c	23.00
Rounds—	155 pounds at 8c	12.40
Chuck—	150 pounds at 6c	9.00
Plate—	110 pounds at 4c	4.40
Shanks—	35 pounds at 4c	1.40
<hr/>		
720 pounds		\$71.90

This will not permit the butcher to come out even. But suppose the steer had been broader backed, deeper fleshed, and less paunchy. The dressing per cent. might have ranged to 65%, giving 780 pounds of beef. The broader back, and greater depth of flesh on back and loin might easily allow the 60 pounds of increase to be entirely in the region of the valuable cuts. Estimating then that the loins would weigh 145 pounds, the ribs 165 pounds, and the rounds 175 pounds, the value of the carcass would rate as follows:

Ribs—	165 pounds at 14c-----	\$23.10
Loins—	145 pounds at 20c-----	29.00
Rounds—	175 pounds at 8c-----	14.00
Chuck—	150 pounds at 6c-----	9.00
Plate—	110 pounds at 4c-----	4.40
Shanks—	35 pounds at 4c-----	1.40
<hr/>		
780 pounds -----		\$80.90

This will allow the butcher a profit of \$9.00 and yet permit him to sell the meat at the same prices, and this illustrates how all important the form, and the disposition of the flesh on the body is in judging fat cattle.

Another point of special importance is the quality of the meat. As has already been stated, the fine grained meat is more tender than the coarse, and in addition to this the tenderness is influenced by the fat interspersed through the muscular tissue. This gives choice beef the characteristic marbled appearance when cut, and it is evidenced in the living animal, by the mellowness, or springiness of the flesh, under the hand.

To increase the weight of flesh and to give it the characteristic tenderness desired, is the purpose of fattening cattle, and the more perfectly the fat is mixed with the lean, the more desirable it is. So marked a difference does fattening make in the edibility of the flesh, that a cut from the chuck of a well fattened animal is more desirable than a porter-house steak from one that is in thin condition.

In judging fat cattle, then, the important considerations are: 1st, the proportion of valuable parts to the less valuable. This we consider under Form. 2nd, the dressing percentage, or the relation between beef and offal, which we consider under both Quality and Condition. 3rd, Condi-

tion, which considers the amount and quality of flesh present, with particular regard to the presence of fat, which gives a mellowness to the flesh of the living animal, and a tenderness to the meat when the animal is slaughtered for beef. These three—Form, Condition, and Quality—are the stockman's Trinity, and all powerful factors in judging fat cattle.

LECTURE VIII.

SELECTING STEERS FOR THE FEED-LOT.

In selecting steers for the feed-lot, profit is the controlling factor. This depends upon the economy of gain, and rate of gain by the steers, and also upon the buying and selling price.

Age is the most important factor in controlling the rate and economy of gain. Young animals make more rapid and economical gains than mature steers. This difference is very marked. The investigations of the earliest and most thorough of experimenters, Lawes and Gilbert, show that approximately 12 to 13 pounds of dry matter is required to produce a pound of gain on a fattening steer of mature age, and later investigations generally confirm this, though some experiments have shown that a pound of gain may be produced from about 11 pounds of dry matter.

Careful experiments at different stations in the United States show that younger animals make much more economical gains than the above. Results at the Iowa Station with animals from 1 week to 24 months in age, gave the following significant results:

First three months—1 pound gain for each 1.7 pound dry matter.

Eighth month—1 pound gain for each 4.6 pounds dry matter.

Seventeenth month—1 pound gain for each 5.97 pounds dry matter.

From twentieth to twenty-fourth month—1 pound for each 9.02 pounds dry matter.

Experiments at other stations show similar results.

The rate of gain is also greater in young animals. Many experiments have shown this, and the records of the first prize winners at the Chicago Fat Stock Show, from 1878 to

1894, also show that the rate of gain decreases with age. The difference is as follows:

Average Age of All First Prize Winners for 15 Yrs.	Average Gain per Day from Birth.
Yearling class—652 days-----	2.12 pounds.
2-year-old class—968 days-----	1.81 pounds.
3-year-old class—1,341 days-----	1.56 pounds.

The foregoing shows what a difference age has on economy and rate of gain, and the experience of all practical feeders is in agreement with this, save in cases of a short feed, when mature steers, in but moderate condition, may be expected to give most rapid gains; but such gains are never so economical as in the case of the younger animals, and the time of feed is necessarily short.

Individual excellence in the animal, is the most important consideration in choosing steers for the feed-lot.

This has already been discussed to some extent under stockers and feeders, and it is unnecessary to repeat here, save to call attention to the fact that the deep-bodied, low-set, broad-backed steers, with an abundance of quality, are the ones that place their meat in the region of valuable cuts, and dress out a high percentage of edible meat. So far as economy, rate of gain, and value of finished product is concerned, good and choice feeders are the only ones that should be purchased, but market conditions are sometimes such as to render the cheaper grades more profitable feeders. This is too complicated a subject to be dealt with in the present work, but it should be noted that the difference between buying and selling prices increases as the grade of stock becomes lower. That is, in feeding inferior feeders they must be sold for a greater advance over cost, to enable the feeder to come out even, than when choice feeders are used.

Summary.

Young animals make most rapid and economical gains. Those under 15 months and weighing less than 800 pounds, however, can usually be handled more profitably as stockers. In buying feeders the most desirable ones, from the standpoint of economy and rapidity of gain, are those that show

the desired weight—preferable from 900 pounds to 1,000 pounds—at the youngest age.

Choice feeders mature into beeves that carry a high proportion of the most desirable meat, and a minimum of offal. They are therefore most sought for, and when finished, sell for the highest market prices—they also require the least margin—and taking one year with another, they will sell sufficiently higher than the inferior grades, to justify their greater cost.

LECTURE IX.

POINTS TO BE OBSERVED IN JUDGING BREEDING CATTLE.

In judging breeding cattle, it is necessary to take into account the interests of the butcher and feeder. These have already been considered. There are certain characteristics, however, which are important to the breeder, which have not been considered.

Pedigree, or the purity of blood an animal possesses, is a valuable asset, but this cannot be considered in judging breeding cattle in the show ring. Individuality is the sole test. Like produces like. "As the parents are, so shall the children be." This principle is recognized as the ruling one.

In judging beef bulls the following points should be observed:

Masculinity.

In a bull possessing this important characteristic, a single glance at the head alone will reveal the male. The head is short, broad, and has a burly appearance, due to the fullness of forehead, and the width at the crown. The horns are short, but massive, and the face is usually covered with curly hair. The neck is short, powerful, and surmounted by a heavy crest, and there is a massiveness about the animal which impresses one with its sense of reserve strength. This is characteristic of all great bulls, and may be said to indicate vigor and prepotency, or a capacity to beget calves like themselves.

Form.

The form should correspond in general to the type desired by the butcher and feeder. The same levelness of lines, spring of rib, depth and width of body as is sought for in the choice feeder and prime steer, should be present.

Natural Flesh.

"Thick-fleshed cattle breed thick-fleshed cattle," was the laconic comment of a successful veteran breeder. Truer

words were never spoken. Depth of flesh—not fat, but flesh—is an all important attribute of a beef sire. The muscles of the loin, back and hindquarters should be large, giving that depth of muscular tissue so much desired in feeders. A wealth of natural flesh when in ordinary breeding condition, is a most valuable characteristic of good beef bulls.

Constitution.

The importance of this has already been discussed under Stockers and Feeders, but it is still more important in breeding stock, not only because of the more vigorous digestive and assimilative power gained thereby, but also because it ensures greater freedom from disease. The health and vigor of cattle may be gauged very accurately by the depth and width of chest. Narrow chested animals are especially susceptible to such diseases as tuberculosis. The importance of a “good middle” or deep, wide chest, with well sprung fore-ribs, cannot be over emphasized in judging breeding stock.

Early Maturity.

The capacity to grow steadily and rapidly to a marketable weight while still young, is especially desirable, and much sought after by breeders. This is indicated to the judge by the animal's weight and finish for age, and varies in the different breeds. Broadly speaking, a bull which has made a weight of 1,600 pounds at 20 months of age should be considered early maturing, providing that he has not been unduly fattened.

Quality.

Bulls are naturally coarser throughout than steers or cows, but while this is to be expected, there should be indications of quality in dense, clean bone in the limbs; the hide should be of moderate thickness, and the skin should be pliable and mellow to the hand. The coat varies in the different breeds, but should be of moderate length, with a soft and downy undercoat, which is almost like fur in the winter; in the summer this is not so apparent.

Besides the characteristics of masculinity, form, natural flesh, constitution, early maturity and quality, due attention should be paid to the general vigor of the animal. The legs should be straight, and in the hind limbs especially, there should be no tendency to bend out at the hocks, nor to be weak in the pasterns. A bull's hind limbs are subject to

considerable strain when the animal is in active service, and any weakness will soon reveal itself, and may end the usefulness of the bull.

Cows should possess the same characteristics of form, quality, natural flesh, and constitution as bulls; but there should be a finer appearance to the head and neck, and the forequarters should be much lighter, while the hindquarters should possess more width than in the bull, particularly in the region of the pelvis. The cow should also show signs of being a good milker, for the most regular breeders are those that yield a fair flow of milk.

Form, natural flesh, constitution and quality and early maturity should all receive due attention in breeding stock; in the bull strong masculinity is desired as an important requisite, while the females should possess the opposite traits. It should ever be kept in mind that a weakness in breeding stock is far more serious than in feeders or stockers, for in the latter case the defect ceases with the individual, while in breeding bulls, a weakness may be transmitted to several hundred offspring; in the case of the cow the same transmission occurs, but in more limited degree.

LECTURE X.

THE ORIGIN, HISTORY, AND DEVELOPMENT OF SHORT-HORN CATTLE IN GREAT BRITAIN.

The birthplace of the Shorthorn breed is beyond all question in the north-eastern part of England, in the Counties of York, Durham, Northumberland and Lincoln.

The early cattle of this section were of two types, but both were Shorthorns. One was of a rather dingy hue, the other somewhat larger and of varied colors, red and white colors predominating, but they were known even at this early time as the Shorthorn and Middlehorn breeds, and not even in tradition is any other type of bovines ever attributed to this section.

The dingy colored stock, sometimes known as the Horned Race of Black Cattle, predominated in Yorkshire and the adjacent counties in the 17th Century. At this time the other distinct types were the pied, or spotted, cattle of Lincolnshire, and the red stock of Somerset and Gloucestershire. These three distinct types existed in England at this time, but Wm. Ellis, a noted authority of the period, states that of all the cattle of England the Holderness breed was the best, being characterized by short, deep bodies, large udders, and, whether red or black, being the most profitable cattle for the dairyman, grazier, and butcher. These Holderness cows were from the south-eastern part of Yorkshire. About this time, the middle of the 17th Century, some large Dutch or Flanders cattle were brought in. These were chiefly cows, but it is claimed that some bulls from Holland were also brought in and used. It should be distinctly understood, however, that these cattle imported from Holland were not the Holstein-Fresian, but it is generally assumed that the Holstein-Fresian were descended from this same type. These Dutch cattle, however, were large, rather coarse cattle, good milkers, and fairly profitable animals for the butcher. The blending of these different types of cattle—that is, all the native types found, and the Dutch

cattle—resulted in a general type known as the Shorthorn or Teeswater stock. It is generally understood, however, that Shorthorn types of cattle existed in Yorkshire as early as 1580.

The landlords and wealthy men of north-east England did much to encourage the breeding of the best cattle among their tenants, and through their encouragement the Teeswater stock was brought up to some degree of uniformity and became the basis of the typical Shorthorn.

Regarding the characteristics of the Teeswater stock at this time (1780) we cannot do better than to give the description given by Carr. He says: "The best specimens of the breed at that time were generally wide-backed, well-framed cows, deep in their forequarters, soft and mellow in their hair and 'handling,' and possessing, with average milking qualities, a remarkable disposition to fatten. Their horns were rather longer than those of their descendants of the present day and inclining upward. The defects were those of an undue prominence of the hip and shoulder point, a want of length in the hindquarters, of width in the floor of the chest, of fullness generally before and behind the shoulders, as well as of flesh upon the shoulder itself. They had a somewhat disproportionate abdomen, were too long in the legs, and showed a want of substance, indicative of delicacy, in the hide. They failed also in the essential requisite of taking on their flesh evenly and firmly over the whole frame, which frequently gave them an unlevel appearance. There was, moreover, a general want of compactness in their conformation." Such was the general type of the Teeswater stock of 1780.

The work of Bakewell, described in Lecture I., inspired others to do likewise. While there were, between 1730 and 1780, many breeders who did much towards the improvement of cattle, yet none had proceeded in so systematic a manner as Bakewell, until in 1783 Charles and Robert Colling took up the work.

The Colling Brothers were reared on the farm, their father was a stock breeder, and they began breeding about 1780, at the close of the American Revolution. The values of cattle were much depressed at this time, and agricultural conditions in general were none too prosperous.

In the very beginning of their work, Charles Colling, in 1783, with unusual foresight, went direct to Bakewell's farm at Dishley and made a prolonged study of the theory and practice of inbreeding and of Bakewell's general methods and management. In the next year he bought a cow on the Darlington market which became one of the most noted cows of his entire herd, and he stated frankly in after years that he had never been able to breed one as good as this original cow that he bought. She is described as a massive, short-legged animal of a beautiful yellow-red flecked color, and was undoubtedly an animal of very superior merit. The low price of cattle at this time is shown by the fact that Colling paid but \$55.00 for her. During the next few years he bought many other cows and used many bulls of different breeding, but one, Hubback, was the most useful of any that he used. This animal was bred by a small farmer from the only cow that he possessed, and his value was not realized for many years. Charles Colling saw him, but was not particularly impressed with his value, and declined to buy him. His brother Robert, however, purchased him and used him very successfully, afterwards selling him to Charles Colling, and Charles Colling, after using him for a brief time, sold him. This animal was of unusual refinement and is described by Coates as having a good head; horns, small and fine; neck, fine; breast, well-filled and fine; shoulders, upright; girth, good; loin, belly, and sides, fair; and rump and hips, exceptional; flank and twist, wonderful; and is further mentioned by Mr. Bates as having clean, waxy horns, mild, bright eyes, and a pleasant countenance; and further says that he was one of the most remarkably quick feeders ever known. He retained his soft and downy coat long into the summer, and in handling was superior to that of any bull of the day.

The calves sired by this animal partook largely of his excellent characteristics and he was, by all odds, the most useful of all animals used in early days. The Colling Brothers were unusually careful, and were good judges, followed Bakewell's plan of inbreeding, breeding to the best regardless of relationship, and achieved notable success along these lines.

About the middle of their breeding operations they introduced alloy blood from the Galloway breed, but the results of this were very slight and of no special importance even

at that early date, though in later years some breeders revived this and undertook to make some capital out of it by endeavoring to discredit animals that presented any tinge of this alloy.

A large part of the success of the Colling Brothers was undoubtedly due to the fact that they were very energetic and advertised their breed very widely. They did this in every possible way, and especially by fitting animals to a high condition and exhibiting them throughout the country. Two of the most noted animals shown in this way were the Durham Ox and the White Heifer that Traveled.

In 1810 Charles Colling closed out, receiving high prices for all of his stock. His brother Robert continued breeding until 1820, when he also sold out very successfully. The work done by the Colling Brothers deserved special attention, for upon their farms of Kelton and Brampton, in Yorkshire, the modern Shorthorn virtually received its beginning, and the influence of these energetic men paved the way for many other improvers.

Contemporary with the Colling Brothers were many other breeders who did much towards the improvement of the breed. Of the men who followed them, many in number, those who deserve special mention were Thos. Bates, Thos. Booth, Sr., Earl Spencer, Jonas Whittaker, and Christopher Mason. These men should have a leading rank among the breeders of this day, and Thos. Bates and Thos. Booth were easily the leaders of all. The elder Booth began his work in 1790. He had studied the methods of Bakewell and had recently observed the success of the Colling Brothers, and had come to the conclusion that the policy of careful selection and inbreeding pursued by them was the right one. He seems to have had considerable independence of character, for he did not go to the Colling herd for all of his stock. He considered it sufficient to select good cows in his own immediate neighborhood and to resort to the Colling herd only for the purpose of securing sires to place at the head of his herd. His one aim from the very beginning was to produce deep-bodied, heavy, deep-fleshed animals of superior beef form and quality, and he bred to this aim with commendable perseverance and success, disregarding milking qualities entirely. He was a good judge, careful in selection, and suc-

ceeded far better than any other breeder who was aiming at the same end.

Thos. Bates, contemporary practically with the elder Booth, was a man of unusual ability, though of somewhat peculiar characteristics. He, too, had carefully studied the work of Bakewell and Charles and Robert Colling. He was particularly interested in cattle breeding, and believed that the policy of selecting and inbreeding, choosing only the best to breed to the best, was the right. He resorted to the Colling herds for both males and females, but bred for both beef and milk, and achieved notable success in both lines. He kept a careful record of all of his cows, knew exactly how much butter they were producing, and seems to have been the first breeder who made any systematic efforts in this line. He was a careful student of pedigrees, and, in fact, was inclined to lay almost too much stress upon this matter. He displayed great foresight in his early purchases, and laid special emphasis upon securing both beef and dairy qualities in the cows he purchased. He thought very highly of the blood of the great bull, Hubback, and tried in every way to secure this blood. The reason he thought so highly of this was because cows of this strain were especially good milkers. He finally succeeded in securing this blood through a cow known as Young Duchess. She was rather inferior as an individual, but he trusted to the blood which he knew she carried. She proved to be a very successful cow in his hands, and gave rise to a family known as the Duchess family. He prized this very highly and did a great deal of inbreeding with animals of this blood. In fact, after a few years declined to go to any outside herd for animals to mate with them. This resulted in very close inbreeding, and it proved very detrimental to his herd, in that while the individual merit of the animals was not materially injured, sterility resulted, and the rate of increase in his herd was very low. Of the animals he bred the Duchess strains were beyond all doubt the most noted, and, by his energetic methods of advertising, he made his strains of blood known, not only in Great Britain, but also in America, and a number of importations were made. The craze for cattle of Bates' breeding increased, and finally culminated in 1873 at a sale in New York state, when two cows of the Duchess (Durham) strain were sold for \$35,000.00 and \$40,600.00, respectively.

More will be said of this when the history of the Shorthorn cattle in America is taken up.

The characteristic of Bates' work will be seen in the general stamp of cattle he produced. His cows were deep-milking sorts, of good beef form, and his cattle had more style than any that had been bred before this.

The Booth and Bates strains became predominant in both England and America, and on the rich pastures of England and the central states of America, they proved very successful. In the north of England and in Scotland, however, they did not prove to be hardy enough to satisfy the demands made upon them, and it is to the hardy Scotch tenantry that we owe the production of another type. The requirements of Scotland were very peculiar; the climate is raw and chilly, and hard on stock for a large part of the year. The production of grains is none too good, but turnips can be raised very successfully, and cattle can be fattened well on these. The class of cattle suited to the requirements of Scotland farmers had to be a kind of cattle that would prove hardy under ordinary farm conditions, and would fatten rapidly and prove to be rent payers. A number of Scotch breeders had made marked improvement on the native cattle, which were black, and also on some of the Shorthorns that had been imported from England, but it remained for Amos and Anthony Cruickshank to produce a type of cattle that would meet the requirements of the Scotch farmer.

Amos Cruickshank was born in 1808, brought up on the farm, and began breeding cattle when still a young man. He was a most excellent judge of cattle, had unfailing perseverance, independence, and was possessed of a decided love for cattle. His one aim was to produce animals that would be hardy enough to withstand the rigors of the Scottish climate, and that would mature at an early and profitable age. In other words, he desired to secure animals that would return the greatest and most profitable gains in beef in the shortest time.

He had studied something of the methods of the earlier breeders, but seems to have paid little attention to them in the early stages of his work. He began in a very modest way, going down into England, looking over the different herds, but with characteristic Scotch shrewdness and prudence, took back but one heifer. In the following years he

purchased others. His guiding rule in all his purchases seems to have been individual merit. He paid but little attention to pedigree, and seemed to have cared very little for blood lines. He required of every animal a good middle. Without this they were rejected without a moment's consideration. His claim was that the animal must possess a good, vigorous constitution to enable them to withstand the severity of the Scottish climate and to utilize feed in a profitable manner. In addition to his cardinal point of strong constitution he desired and endeavored to secure a high degree of individual excellence in all parts in the animals he purchased. He was absolutely independent in his purchases, buying of all lines of blood, including Booth and Bates cattle, and cattle in his own locality. Whatever he saw that pleased him he secured, providing it could be bought at a reasonable price.

He was especially free in his purchase of bulls, buying many, testing them cautiously at first, and, if the results were not satisfactory, disposing of them at once. He had increased his herd to more than 100 head from 1850 to 1860, and the animals were far above the average, but had, as yet, failed to secure what he most sought for—early development and deep-fleshing qualities. At this time, while in doubt as to where he could secure a bull that would suit him, he wrote to an old friend, asking if he could not send him one. The friend did so. This bull, Lancaster Comet, "stood near the ground, had a beautiful coat of hair, a round barrel, straight top and bottom lines, level quarters, nicely filled thighs, carried plenty of flesh, and was active on his feet." In size he was about medium, not massive enough to suit Mr. Cruickshank, and he was so unprepossessing about the head that Mr. Cruickshank was decidedly displeased with him and turned him out in a back pasture with some cows that had failed to settle to other bulls. These he got with calf, and as he was allowed to run out late in the fall, he contracted rheumatism, and was sent to the shambles, before any of his calves had been seen. Not more than a dozen calves were sired by him, and none of the heifers were retained. Some of the bull calves were sold, but one, that attracted no special attention at the time, was retained under the name of Champion of England. He was exhibited at some of the live stock shows as a calf, but was not particularly successful as a prize winner, and came near being sold.

His individuality, however, was such as led Mr. Cruickshank to retain him. The bull, even as a calf, was particularly strong on his fore ribs, had excellent feeding quality, and soon began to assume more massive proportions than his sire, Lancaster Comet. The calves from Champion of England suited Mr. Cruickshank. They were low-set, deep-bodied, broad-backed youngsters, with a wealth of natural flesh, and soon gave evidence of a capacity for early maturity. So well pleased was Mr. Cruickshank with these calves that he began a policy of inbreeding to definitely fix the characteristics which he had secured in Champion of England and his get. He succeeded in doing this and was able to secure this concentration in blood without impairing the vigor of his animals, and this concentration of blood rendered the animals from his herd so strongly prepotent when used on other herds, that the whole stock breeding world turned to the Grand Old Man of Sittyton for herd headers.

Anthony Cruickshank deserves a word of mention in this connection, for he was associated with Amos from the very beginning, and seems to have attended to most of the business of the firm. He was a very energetic man, who mingled freely with business men, and it was to his efforts in a large part that the Cruickshank cattle were brought prominent before the public. His judgment as a cattle breeder, however, was never considered to be as good as that of Amos.

Such, in brief, is the origin, history, and development of the Shorthorn breed in Great Britain; founded on a mixed stock which was blended into a type known as the Teeswater stock, it was built up largely by an application of Bakewell's methods. Careful selection, with a constant seeking after the essentials of hardiness, early maturity, and flesh carrying capacity, has characterized the work of the greatest improvers of the breed, and the greatest success has been gained by those who laid most stress on individual excellence. Inbreeding, when resorted to by these great leaders, was done to concentrate the blood of animals possessing certain desirable characteristics; but most significant of all, to students, are the characteristics of the great leaders: love for stock, a definite aim in breeding, and unfaltering perseverance placed the Colling Brothers, Thomas Booth, Thomas Bates, and Amos and Anthony Cruickshank, in the high position of leaders of the Shorthorn world.

LECTURE XI.

INTRODUCTION OF SHORTHORN CATTLE INTO AMERICA.

At the close of the long drawn, hard fought war of the Revolution the sturdy American pioneers proceeded at once to build up their flocks and herds. Virginia had the honor of the first importations of which we have any definite accounts. In 1783 two public spirited citizens, Messrs. Miller and Gough, brought over a number of the red, white and roans. These were of two distinct strains—beef and milk—corresponding to similar strains in England. The value of these improved cattle over the native strains was at once recognized, and their progeny, pure-bred or grade, was in immediate demand. Many of the Virginians were at this time moving westward to the fertile fields of Kentucky and Ohio. Among the early pioneers were the Pattons (father and sons), who took both pure-bred and grade animals, descended from the Miller and Gough importations, with them to Kentucky. Other western men of both Ohio and Kentucky, were quick to appreciate the superiority of the improved stock, and went to Virginia for bulls descended from the Miller and Gough importation. The wealth of blue grass pasture in Kentucky and Ohio gave the residents of those states unusual advantages in rearing market cattle. Steers were profitably grazed and fattened, but a limited market was the earliest handicap. The Renicks, of Ohio, however, soon solved this by demonstrating that it was feasible and profitable to drive fat steers from Ohio to the seaboard cities—Baltimore, Philadelphia, and New York—where they sold at high prices. This spurred the farmers and breeders of these states to renewed efforts in improving their cattle, and, while small importations were made by men in New York and New England, it remained for Col. Sanders, of Kentucky, to make the first important importation. This was in 1817, and as it was before the establishment of a Herd Book in England, none of the cattle were registered, but it should

be remembered that all the cattle of England were unregistered—save in private herd books—at this time. Four Short-horn bulls and four Shorthorn cows came in this importation. Some of the cows left a numerous progeny that have ever since been known to the Shorthorn world as the “Seventeens.”

The good results secured from this importation, in raising the standard of the cattle bred and grazed for market purposes, prompted other men to look for further importations. The expense of importing at this time, however, was very great, and attended with considerable risk, as the cattle had to be brought over on sailing vessels, which were slow and subject to storms.

The difficulties above mentioned tended to deter individual breeders and feeders from such attempts, but in 1833 sufficient interest was aroused among Ohio men to cause the formation of a company, the purpose of which was “to promote the interests of agriculture, and to introduce improved breeds of cattle.” This company had in all about fifty shareholders, including two Ex-Governors, and many other men prominent in advancing the interests of the state.

Felix Renick was the most active in the organization of the company, and as he had long been a leading breeder and feeder, it was but natural that he should be sent to England to make the purchases. No limitations were placed on him regarding breeds, prices, or number of animals. He went, with two assistants, to practically all the leading herds of Great Britain, including those of Devonshire and Herefordshire, met the leading English breeders and had the benefit of the advice of Thomas Bates and Jonas Whitaker in making his purchases. After careful investigation, he purchased Shorthorns—seven bulls and twelve cows and heifers of excellent individual merit and of good breeding. These were shipped to America in 1834, and were followed in 1835 and 1836 by shipments chosen for the company by Mr. Jonas Whitaker, in whose judgment Mr. Renick had implicit confidence. A total of sixty-one head were imported by the company, and as the purpose for which it was formed had been accomplished, it was dissolved by auction sales of the stock in 1836 and 1837, at which stockholders and outsiders were alike allowed to bid. The cattle all brought satisfactory prices and were of inestimable value in improving the cattle already in the central states.

These early importations were followed by a severe depression from 1840 to 1850, due to the general panic in business. No importing was done, and the best cattle could scarcely be sold—not because men did not appreciate good blood, but because they had not the means with which to purchase. From 1850 to 1857, however, values again became normal, numerous companies were formed, and considerable importing was done. The Civil War checked the good work. After its close the trade increased rapidly, but a craze for certain families set in. The Bates cattle were in most demand, and the choicest of these were few in number. Through the manipulation of men who were in large part speculators, all the American cattle of these most desired families were gathered into one herd at New York Mills. An unreasonable craze for the choicest strain of Bates blood—The Duchess—had set in in England at this time, and numerous animals had been exported to England in the years from 1868 to 1872. Clever manipulation on the part of speculators had led the Shorthorn world to believe that the future of the breed rested on the Duchess, buyers were present at the great dispersion sale at New York Mills, 1873, from England, Canada, and all parts of the United States. Prices soared beyond all reason; men were swept away by the craze for fashionable blood, and the two most desired cows—Duchess 8th and Duchess 10th of Geneva—were sold for \$40,600.00 and \$35,000.00 respectively. Prices ranging from \$10,000.00 to \$25,000.00 at this sale caused no comment, and the average on 109 animals amounted to \$3,504.00 each.

Such inflation of values could have but one result. Depression of the most severe kind followed, until the much lauded Bates blood fell to abnormally low prices—less in some cases than the animals were worth as beef.

Notwithstanding the craze for Bates blood, many other useful strains had been freely imported, and had been forging to the front. At the close of the Civil War, Canada began to import extensively. A large proportion of the early settlers of Canada were of Scotch origin. It was but natural that they should take with them the stock which had proven the best in their own country, and to this must be ascribed the fact that most of the early importations of Scotch cattle came through Canada. The great work of Amos Cruickshank had but begun to be recognized at the time the depression of the Bates ranks had begun. Joseph S. Thompson

and James I. Davidson, of Ontario, were among the earliest importers of the deep-bodied, low-set, thick-fleshed Scotch sort; they advertised them judiciously, and it was not long ere they attracted the attention of the hard-headed farmers of the central west. It was soon seen that these deep-fleshed, early maturing cattle were exactly what the feeders and breeders of the west needed. The strong demand which then set in has continued to the present time, and was accelerated in the early eighties by the appearance of the Aberdeen-Angus and Herefords. These low-set, deep-fleshed breeds pressed hard on the Shorthorns of that time; the Bates bred stock had been bred too much for fancy points, and did not possess the requisite feeding capacity nor depth of flesh to successfully withstand the onslaught of the invaders in the fat stock shows. The Scotch cattle and their grades successfully met the new comers in the shows and in the feed-lots, and carried the colors of the red, white and roan through the most trying period in the history of the breed in America.

It is impossible to enumerate in this brief space any save the leaders in the introduction of the Shorthorn cattle into America. They were imported for business reasons, have been bred for the same end, and while the craze for fashionable breeding has at times carried the Shorthorn ship perilously near the breakers, for the most part individual excellence (fitness for beef and milk purposes) has guided breeders in their work. The men who have done most in importing the best animals to improve American herds, have been men of generous purposes, public-spirited, caring more for the ultimate good to fellow-breeders than for immediate financial gain. The earliest importations were unpedigreed, later importations were of practically all the leading strains, including Booth and Bates, and last came the Scotch bred cattle, which have, in a large part, been imported through Canada. Since the earliest importations, thousands of Great Britain's best have been brought to America's shores, and the high degree of prosperity which rests on agricultural interests is due in no small degree to the introduction of the red, white, and roan.

LECTURE XII.

SHORTHORNS—JUDGING AND SELECTION.

The following points should be observed in judging and selecting Shorthorn bulls:

Form.

Practically the same as already discussed in foregoing lectures. The body should be low-set, deep, wide, with strong spring of rib, and long, wide hindquarters. The head should be short, wide, and burly; the neck short, with a strong crest. The shoulder vein should swell smoothly into the shoulders, which should be broad and strong, but not unduly coarse. They should not be too open on top. Just back of the shoulder the spring of rib should be very strong, giving a round, full "chine," and a roomy chest. This spring of rib should continue clear to the floor of the chest, for far too often there is a slackness at the foreflank giving a narrow floored chest. The top and bottom lines should be straight, and to this end the hind flank should be low and full. The loin should be wide and level, the rump long and level, and the thigh wide, the width continuing well toward the hock as viewed from the side. Viewed from behind, the hindquarters should be wide, and there should be an absence of patches about the rump. Over all parts there should be a deep layer of natural flesh; this should be particularly noticeable on the loin and back, and in the hindquarters, where the twist and thigh should be full and deep, extending well nigh to the hock.

Constitution.

This is guaranteed by a deep, wide chest; too much stress cannot be laid on this, as it measures the ultimate usefulness of the animal for any purpose.

Quality.

Evidenced by dense, clean bone, proportionately to the size of the animal; a loose, pliable skin of medium thick-

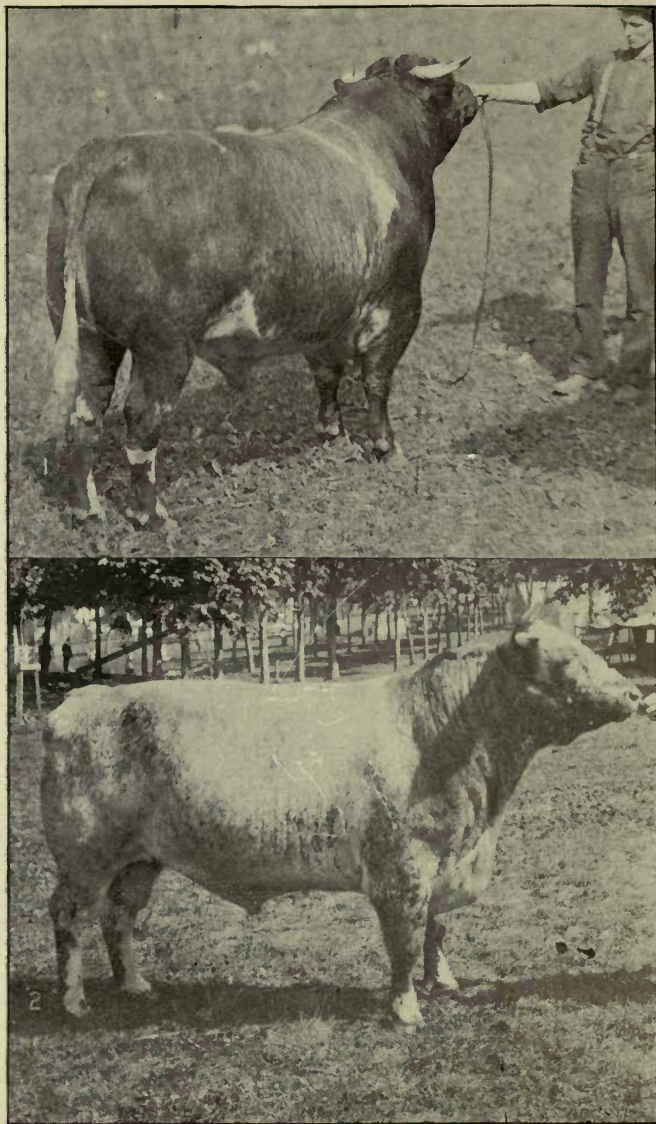


Fig. 16. 1. Nonpareil of Clover Blossom. 2. Ceremonious Archer.
(Breeders' Gazette.)

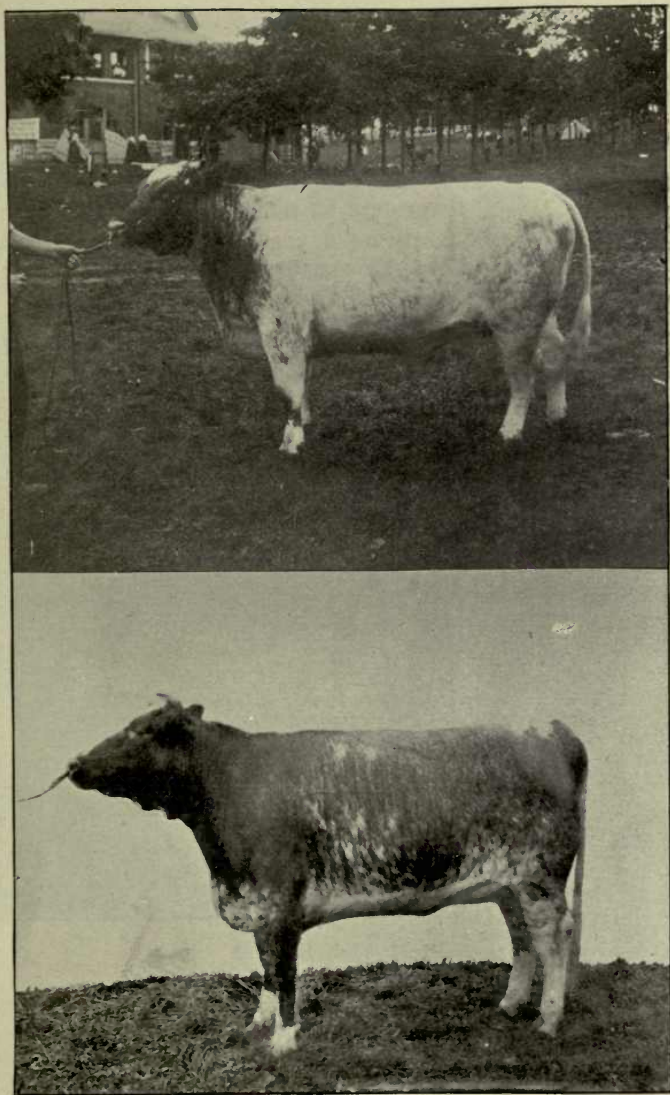


Fig. 17. 1. Village Belle. 2. Fair Queen.

ness, and the general development of the skeleton, seen also in the head, shoulders and hocks.

Breed Type.

This is the hardest to grasp of all points, and experience is required to enable one to understand it thoroughly. Briefly, it may be defined as the sum of characters which distinguishes a breed. It involves all things.

To say that a Shorthorn bull is of good breed type, means that he possesses the form, constitution and quality desired;



Fig. 18. Inferior Type.

that he is of the recognized color—red, white, or roan—or any combination of these; that he is of the scale for age that the majority of Shorthorn breeders demand; that he has symmetry of parts, and a stylish, vigorous appearance, and that he possesses that all-important requisite—strong masculine character.

Early maturity, deep-fleshing properties, and a generous feeding capacity are also points sought for, and a great many breeders desire to see heavy, mossy coat of hair, soft and silky to the touch.

Such, in brief, are the points to be observed in judging or selecting a Shorthorn bull, and precisely the same points should be observed in judging females save for the differences due to the difference in sex. These have already been commented on in previous lectures, but it should be noted that Shorthorn breeders lay great emphasis on femininity in cows and heifers. This is shown most in the head, which should be short, broad between the eyes, and in the forehead, and slightly hollow in the outline of the face, especially between the eyes; the muzzle should be large, wide nostrils, and the face clean cut. The eyes should be large, bright and placid, the horns wide set, and gently curving forward. The combination of these characteristics, with refinement in neck and forequarters, gives the cow that appearance which stamps the female of desirable breeding qualities, and it is this—known as femininity—which breeders look for in cows.

Form, constitution, quality, and breed type are the essential points to be observed in judging and selecting Shorthorn cattle; and breed type really involves all the characteristics which distinguish the breed.

LECTURE XIII.

HEREFORD CATTLE.

Origin, History, and Development in Great Britain.

Herefordshire, England, claims the honor of having given to the world this great breed of beef cattle. The county of Hereford lies along the foothills of the Welsh mountains, is a fertile country, especially luxuriant in grasses, and thereby adapted to grazing.

Herefordshire possessed good grazing cattle long before the mention of white-faced cattle, but the most improvement appears to have come with the introduction of the white-faced cattle. From whence these came is not definitely known; but tradition, and old animal portraits, inform us that a white-faced breed existed in Flanders in the 16th Century.

Accounts which appear trustworthy inform us that Lord Scudamore introduced cattle from Flanders about 1650; and there are authentic accounts of the introduction, by William Galliers, of Wigmore Grange, of a white-faced red bull, with rather wide, rough horns, from Yorkshire. There are no accounts of a white-faced breed in Yorkshire at this time, and it is probable that this bull was either a "sport," or perhaps brought from Flanders.

Whatever the exact origin of the breed may be, it is certain that by the beginning of the 18th Century, white, and mottled-faced cattle, were to be found in various parts of Great Britain. In Herefordshire, Richard Tomkins possessed cattle above the average. These he willed to his son Benjamin, who began breeding about 1742. He was a quiet farmer, but seems to have had a definite idea of improving his stock by selection. His foundation stock consisted of a large red, white-faced cow, known as Silver, and two other cows, which he bought from a village wheelwright because he had noticed that they had excellent aptitude to fatten. Contemporary

with him were Wm. Galliers, of Wigmore Grange, with whom he was intimately associated in social and business relations; and the Tully Bros., of Huntington, Clyro, and Haywood, Mr. Skyrune, of Stretton, and Messrs. Haywood, of Clifton-on-Teure. All these men were breeders of improved cattle which were very similar in general character to those of Mr. Tomkins.

Benjamin Tomkins, Jr., was born in 1745, grew up on his father's farm, and was associated with him in his breeding operations until 1769, when he began breeding for himself, with stock drawn from his father's herd, and while no records are available, it appears probable that he also utilized blood from the herds of his father's contemporaries. He bred for individual merit, entirely disregarding color (which varied much at this time), and by his energy and good judgment, not only improved the breed in a marked degree, but also brought the breed into favorable public notice—so much so that he is sometimes accredited as the founder of the breed. He retired from business in 1812, and died in 1815. His herd was dispersed in 1819, at good prices.

John Price, of Ryall, was Benjamin Tomkins' greatest follower. He became acquainted with the Tomkins stock in 1804, and bought a few cows from Benjamin Tomkins, Jr., at this time. He crossed these with a bull from another herd, but the results were unsatisfactory, and he returned to Tomkins, bought freely from him, and bred almost purely from the Tomkins blood until his death. This gives a total of seventy years that the Tomkins stock was bred without outcrosses, and the only explanation of such apparently intense breeding lies in the fact that five distinct strains existed at the start. Price, like Bakewell, took the Highland Scots as his model, and sought to produce a Hereford of greater scale than the Scotch Kylve, but of the same symmetrical, loggy form, with similar coats and texture of flesh. He effected marked improvement on the Tomkins stock by reducing the coarseness of hips and broadening the chine by an increased spring of rib. He followed Tomkins in practicing inbreeding to a considerable extent, and, like him, he was energetic in bringing the good points of the Hereford to public notice. He won prizes in competition with other breeds, and on one occasion offered to show a picked number of his cattle against an equal number of any breed in Britain for a

purse of 100 guineas. This challenge, however, was never accepted.

Wm. Hewer and his son John were probably the greatest of all Hereford breeders. They were of Gloucestershire and had obtained their foundation stock of Tully, of Huntington, and from the elder Tomkins. Wm. Hewer improved the stock by judicious selection, but it remained for his son John to effect the greatest improvement on the Hereford stock.

John Hewer was born in 1787; received his early training under his father, and in 1817 was called to manage a large farm for Mr. Browning, who had begun farming in Shropshire, and had purchased most of the Herefords belonging to Wm. Hewer. In 1824 Mr. Browning became bankrupt, and his cattle were sold; most of them were purchased by Mr. John Hewer, who started in business for himself. He pursued a course of vigorous selection and was a great stickler for scale with quality. Many of his bulls weighed from 2,800 to 3,360 pounds, and were in great demand. He adopted and used extensively the plan so successfully followed by leading Shorthorn breeders, of letting his bulls out, and had as many as 55 let at one time, but sold very few save for export. He inbred freely, bred for scale, wealth of flesh and quality, and produced some very noted bulls; and owing to the great number he kept, and their marked individual excellence and prepotency, his cattle have had the greatest influence on the Hereford breed of any known. John Hewer, in fact, was to the Herefords what Bates, Booth and Cruickshank have been to the Shorthorns.

Contemporary with Hewer were a number of noted breeders, the more important of whom were T. A. Knight, Thomas Jr., Edmund and Edward Jeffries, and Mr. Yoemans. The foregoing men were the leading breeders of the early half of the 19th Century. They brought the Hereford breed to high estate in individual merit, but the spread of the breed was seriously checked by a quarrel among Hereford breeders as to color. As before stated, the earlier breeders paid no heed to this, and bred the white-faced, mottle-faced and gray (almost roan) Herefords indiscriminately. A fashion had set in for the pure-bred with white faces, and the contest was long and bitter among the leading breeders, but finally, through the powerful influence of Mr. John Hewer, Mr. Yoemans and Mr. Thos. Jeffries, Jr., resulted in the establishment of the white-faced type we now know.

In conclusion, it is clear that the origin of the breed was in native stock, with a cross of Flemish blood; that methodical selection for definite characterization, aided by in-breeding, has been the chief agent in producing the modern Hereford; and that their introduction to general public favor was seriously hampered by quarrels about color.

LECTURE XIV.

HEREFORD CATTLE.

Introduction Into America.

While various reports exist of some very early importations, the first authentic knowledge we have of any Herefords in America dates to the year 1817, when Henry Clay, of Ashland, Kentucky, imported on the same ship that brought over Col. Sanders' importation of Shorthorn cattle, two pair of Hereford cattle. One bull died enroute, but Mr. Clay placed the three remaining—one bull and two cows—in the hands of one of the best farmers in Kentucky. They were bred for several years, but no more were brought over at this time, and it was soon necessary to branch out to avoid inbreeding. The consequence was that Shorthorn bulls were used on the stock, and the Hereford blood, like the Longhorn, was soon lost in the flood of Shorthorn blood which, a short time later, swept over Kentucky. The presence of this alloy blood was one factor which caused many Shorthorn breeders to object to cattle which traced back to the "Seventeen" stock.

A few years after Henry Clay's importation some small importations were made to Massachusetts, and among these was the bull Sir Isaac, presented to some Massachusetts parties by Admiral Coffin, of the British navy. These importations, however, were soon lost in the general stock of the country.

The first importation which was of any permanent import was made by Wm. Henry Sotham in 1840. Mr. Sotham was English born and was thoroughly familiar with the breed in its native counties. He had done some very successful work in America as a stock buyer, and managed to enlist the aid of the Hon. Erastus Corning, of New York state. The

first importation consisted of five bulls and seventeen cows, and was eminently satisfactory to Mr. Corning. Mr. Sotham was soon sent back for more and purchased an entire ship-load of bulls, cows and heifers; the vessel, however, encountered rough weather, the hatches were closed and all the cattle were suffocated. Mr. Corning was in politics, and as the Shorthorn interests were all powerful in New York, he found it to his interests to relinquish interest in the Herefords, which he sold to Mr. Sotham. Mr. Sotham was limited in means, and was actively opposed by certain Shorthorn men who hoped to profit by the speculation in the Shorthorns. He succeeded, however, in making other importations in 1852-1853, and again in 1861-1862. As before mentioned, he was limited in means, and could not force his stock into public notice as he desired. The Civil War delayed further importations, and the overwhelming ascendancy of the Shorthorn interests practically nullified Mr. Sotham's earnest efforts; and it was not until the 70s that they were brought into general notice.

Chief credit for this is justly due to T. L. Miller. Mr. Miller was born a country boy; in early life he worked in a butcher shop, and in later life removed to Chicago and engaged in the insurance business. He was quite successful and amassed considerable means; and having decided in 1871 to go into agricultural pursuits, he began to establish a herd on his large farm at Beecher, Illinois. He knew nothing of the various breeds, but had known Mr. Sotham and his work, and he was further influenced in favor of the Herefords by his farm manager, Mr. Wm. Powell. After due investigation he decided to enter on Hereford breeding, and began in 1872 by purchasing a few cattle. He followed this up by liberal purchases in various states, until he had acquired quite a large herd. Mr. Miller possessed abundant means, was shrewd and energetic, and a born fighter. He threw himself into the Hereford cause with all abandon, exhibited at the leading shows, whether allowed to enter in the competition or not, and practically forced, by using all his influence, the various shows to provide prizes for the Hereford cattle, or to allow them to enter in breed competition. He early found himself face to face with the same problem that had limited Sotham's operation, viz.: the overwhelming preference of farmers for the Shorthorns. He solved this by seeking an outlet on the ranges for his stock;

and as the Herefords have always been noted for superior grazing qualities, he soon built up a trade that absorbed all his supplies and which furnished him the wherewithal to carry on his campaigns to bring the merits of Hereford cattle before the people of the United States. He also began importing the best animals, and ere long aroused and secured strong support from business men of ability who saw money in the Hereford cattle. Importations followed thick and fast, and the growth of the breed in public favor, especially for grazing purposes, has been marvelous.

It would be manifestly unfair to omit the name of Mr. T. F. B. Sotham from this short account. The son of Wm. Henry Sotham, he inherited from his father a love for the white-faces, and has ever been a leader in building up the breed. He has had many worthy contemporaries, and the breed is today a leading one in the United States.

LECTURE XV.

HEREFORD CATTLE.

Points to Be Observed in the Judging and Selection of the Same.

BULLS.—Form.

Deep-bodied, very low set; head short and wide; neck short, with full shoulder vein and strong crest; shoulders should not be coarse, nor too open on top, but should be well covered with flesh; the spring of ribs should be strong, particularly of fore ribs, and there should be but very little slackness behind the shoulder. The chine should be broad, with well filled crops; the flesh from the neck and the crops should cover the top of shoulder so thoroughly as to render the points of the shoulders invisible. The back and loin should be wide, level, and well covered; the rump of moderate length and level, giving a straight top line. The flanks should be deep and full, and the abdomen, while of generous proportions, should not be so excessive as to markedly detract from the straightness of underline. The hind-quarters, viewed from the rear, should be wide, and the twist should be full and deep. Viewed from the side, the thigh should be wide and well covered with flesh, and the development of muscle in the hindquarters may be so marked as to give rounding buttocks. The rump should be well filled with flesh, so that no depression is noticeable from hooks to tailhead.

Constitution.

Guaranteed by a deep, wide chest; special stress should be laid on this, and where animals are of anywhere near equal merit, the one with the stronger constitution should have the preference.

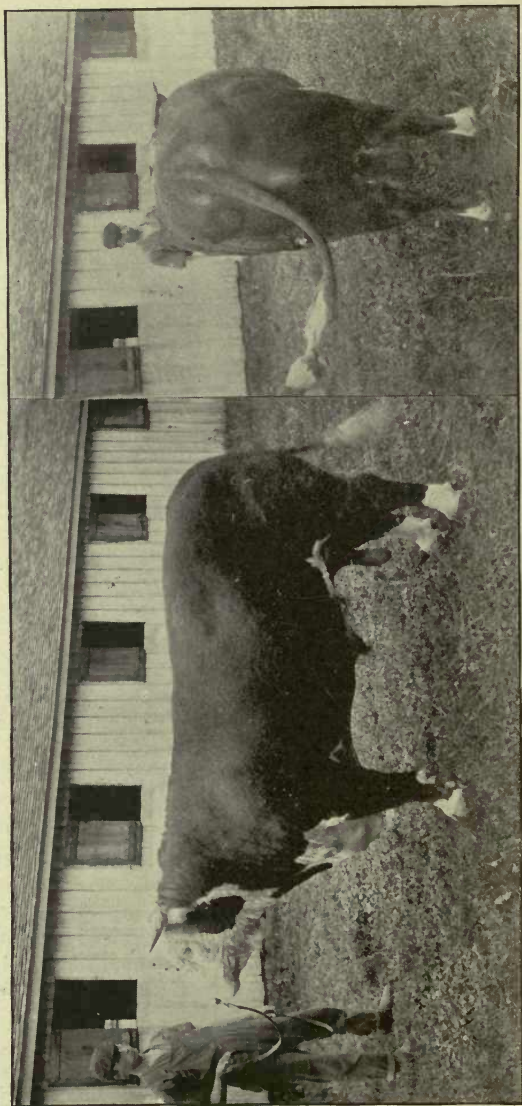


Fig. 19. Bean Donald, 5th.

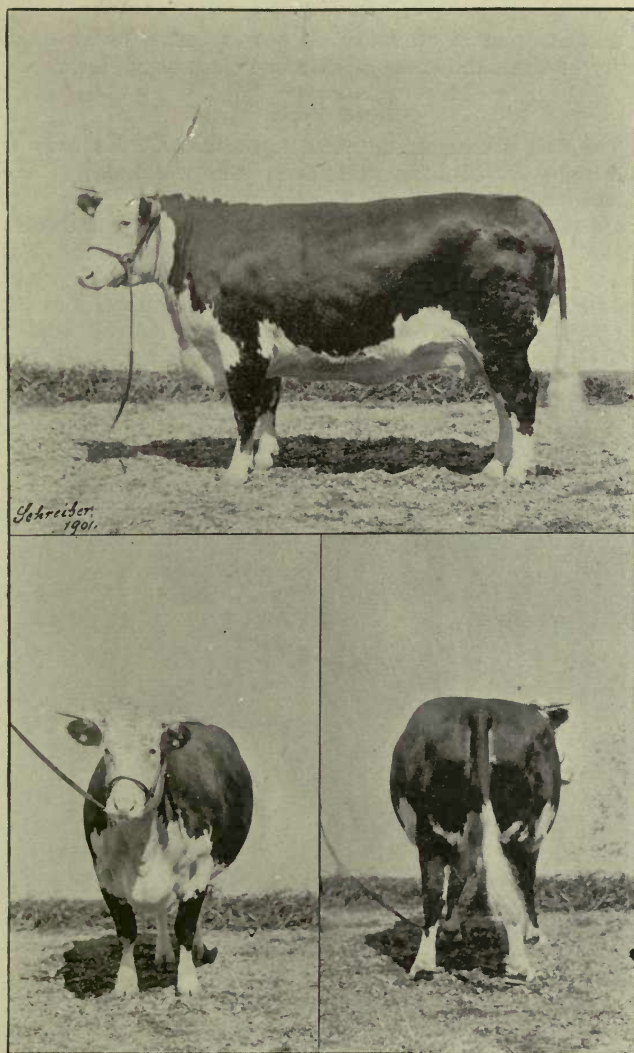


Fig. 20. Lady Briton, 16th.

Quality.

Indicated, as in all other classes of cattle, by size and density of bone, thickness of skin and general appearance.

Breed Type.

The first characteristic noted is the color. The body is red, with white belly and white face. The white may extend to some extent upon the neck, shoulders and flanks, but this is objected to to some extent, however. In the words of a well known judge, Claude H. Makin: "More or less white upon the body, spots on the eyes, and such like minor points, should not hinder a judge from sending a good animal to the front." The spots around the eyes referred to are usually red, or may be bluish mottled spots. A cherry red is preferred to the darker shades, but this is not a serious point, for some of the greatest champions of modern times have been very dark in color.

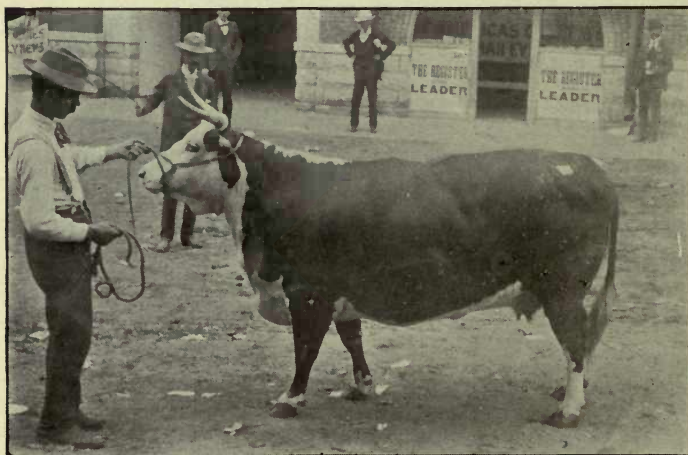


Fig. 21. Cow Showing Uneven Finish and Patchiness.

The skin should be thick and mossy, with a heavy, silky coat of hair, which is quite often curly. A sappy, mellow hide is a most desirable characteristic. The Herefords are noted for heavy weight for size; that is, they often weigh

heavier than appearances would indicate. Early maturity is much sought for, and a deep, even covering of flesh is an all important point. Oftentimes ties (places where the skin is held fast to the bone by gristly strings) are found, and rolls, or rough, uneven patches of fat, also occur. Both of these are undesirable, and should be discriminated against. The covering and texture of flesh should always receive consideration. It should be deep over all valuable parts, and especially extending down over the ribs; for it too often happens that while well covered in certain parts of the body, the ribs are not covered. The texture of the flesh can only be determined by handling. It should be mellow, yet sufficiently firm to indicate the presence of a high proportion of muscle to fat.

The bull should show strongly masculine character, which is determined by the same indications as mentioned in the preceding lectures on Breeding Cattle and on Short-horns, while the cow should show the character of a "breedy" female. Free, vigorous movement, is characteristic of the breed, and should always be looked for; and as mentioned heretofore, strong, straight limbs are important.

Form, constitution, quality, and breed type are the guiding essentials in judging and selecting Herefords, and breeders justly lay much stress on breed type.

LECTURE XVI.

ABERDEEN ANGUS.

Their Origin, History and Development in Great Britain.

While the researches of naturalists have clearly shown that the original wild types of cattle were horned, it is none the less true that polled cattle have existed in Scotland for a time beyond the memory of man. How or when the polled character was established we know not, but in the light of the establishment of other hornless breeds, it is a legitimate supposition that the polled character arose by the preservation of a "sport" (one of those occasional freaks of nature) by man, and by judicious selection of animals possessing the polled character as transmitted by the "sport."

Certain it is that up to the year 1830, two distinct classes of polled cattle existed in the district of Buchan, Scotland; and that these polled cattle constituted about one-half the cattle of the district, the remainder being horned black cattle, similar to the polled cattle in general characteristics.

These two classes of polled cattle were quite distinct. The smaller kind were black, usually thin-fleshed, rather puny and poorly kept, as they belonged to the poorer classes, or crofters. The larger variety of polls were not so uniform in color, some being black, others brown and brindled. They belonged to the well-to-do, and were better kept.

About the close of the 18th Century, and during the early part of the 19th, Shorthorn cattle were securing a strong foothold in Scotland, and it is stated by the best authorities, that Shorthorn bulls were freely used on the polled breeds. The larger class of polls soon showed the results of Shorthorn blood in color and horns; but the smaller variety was evidently much purer, as they retained the polled character, and black or blue gray color to the second, and even to the third cross of Shorthorn blood. The

progeny proved to be extremely profitable butchers' animals, and so rapidly did this system of crossing spread that it was feared the black breed would become extinct, but the efforts of some breeders prevented this. The proportion of Shorthorn blood introduced is not known, for it was many years between the time of the first Shorthorn crosses and the recording of pedigrees, and there is but little doubt that many of the superior polled, black, cross-bred cows were used as breeding stock. This is, however, immaterial, as the breed has become very uniform in character and prepotent in transmitting the same.

The first great Angus breeder was Mr. Hugh Watson, of Keillor.

He began farming on his own account in 1808, with a half dozen of the "blackest and best cows" and a bull of his father's stock. The same year he purchased at Brechin, Forfarshire, ten heifers of various colors—black, brindled, black with brown along the back, and with the same color at the muzzle. He also purchased a black bull. These eighteen head formed his foundation stock. He was a shrewd judge, and bred with the one aim of producing beef animals of high merit. He was a very broad-minded man and enjoyed the friendship of the leading breeders of Great Britain, was very energetic and wide-awake to the advantage of exhibiting his stock; and it is stated by his son, Wm. Watson, that he won more than 500 prizes in England, Scotland, Ireland and France. His animals combined high individual merit, with remarkable constitution. Some of his females were very prolific—one, known as Old Grannie—living to the age of 36 years, and producing 25 calves, 24 of which she reared. The last one, born in her 29th year, was suckled on another cow.

Wm. McCombie, of Tillyfour, was an experienced feeder of steers for market. He had found, in a long and varied experience, that the pure-bred black polled cattle and the crosses containing more or less of their blood, were superior beef animals; and after associating with his father in the beef cattle trade for several years, he began independent operations as a breeder in 1830, spurred thereto by the knowledge that the deluge of Shorthorn crosses threatened the extinction of the breed. Where he secured his foundation stock is not clear, but in a book written by him in after life, he ascribes his success to a Mr. Fullerton, who had be-

gun breeding a very superior class of cattle in 1833. Mr. McCombie says of Mr. Fullerton: "It is to him that I owe my success as a breeder. I shall always look up to him as the founder of my stock." He was also a follower of the great Hugh Watson, whom he declared to be the first great improver of the breed, and it is known that he drew heavily on the Watson stock. Like Watson, he bred for individual merit, and was guided almost wholly by utilitarian motives; and he also bred from close affinities when he deemed it necessary in his policy of breeding "the best to the best." McCombie also followed Watson's footsteps in the show ring, and was even more successful. He exhibited from 1832 to 1878, and it is stated that in all probability he carried off more prizes than any breeder ever known, no matter what the breed. He won the championship in the fat classes at Birmingham three times, and the grand championship at Smithfield once, and was always regarded as a most dangerous opponent in any show ring. In 1878, at the Universal Exposition at Paris, he achieved his crowning triumph when he won a Prize of Honor for the best beef-producing herd of any breed, open to all cattle foreign to France, and later a special prize of 2,500 francs for the best herd of any beef breed, open to the world. Mr. McCombie's earnest efforts did much to bring the merits of the breed before the world, and so high was his standing as a breeder that the queen saw fit to visit him at Tillyfour.

Originating in a mixed class of polled cattle, modified by outcrosses, and skillful selection for a definite purpose, the Aberdeen Angus breed has developed into a breed of marvelous beef-producing capacity, and the credit for its development and for its introduction to the world at large, must rest in largest part on Hugh Watson, of Keillor, and Wm. McCombie, of Tillyfour.

LECTURE XVII.

ABERDEEN ANGUS.

Introduction Into America.

The introduction of Aberdeen Angus into America is comparatively recent, the first importation having been made in 1873 by Mr. George Grant, of Victoria, Kansas. He imported three bulls, which were used upon the native range stock with good results. The Ontario Experimental Farm imported the first breeding herd in 1876, for their farm at Guelph, and this was followed by larger importations in 1878, by Anderson & Findlay, of Lake Forest, Illinois. These gentlemen, with commendable enterprise, showed freely at the leading fairs, regardless of the fact that no classes were provided for the breed, and they also exhibited at the Fat Stock Show at Chicago. In 1880 Mr. George Whitfield, of Ontario, began importing, and while not an extensive breeder, he brought over and sold many high class animals. In 1881 and 1882 many importations were made by parties in various parts of the United States and in 1882 an Aberdeen Angus herd, shown by Gudgell and Simpson, of Missouri, won grand sweepstakes over all breeds at the Kansas City Show. This gave a great impetus to importing, and the black cloud moved rapidly from Scotland to America.

A very large portion of the credit for the rapid increase in popularity of the Aberdeen Angus, must justly go to the Turlington herd. This was established about 1880 by Mr. T. W. Henry, of Chicago. He established the herd at Turlington, Nebraska, under the charge of Mr. Wm. Watson, a son of the great Hugh Watson, of Keillor, the first great improver of the breed, and it is in no way detracting from Mr. Harvey's ability as a stockman to state that to "Uncle Willie" belongs a large share of the credit in building up the Turlington herd. Under Watson's skillful direction, the

breeding herd won high honors in 1883, 1884 and 1885; the breeding herd was then retired from the show ring, and fat steers were sent forward to uphold the honor of Turlington, and right well they did it, for under the skillful feeding of "Uncle Willie," who has often been termed the "King of Feeders," the steers became fit antagonists for the battles of the show ring, and in 1887 carried off more honors for Turlington than had ever been won by one exhibitor. During this while the breeding herd had been increased by careful selection, and in 1890 Mr. John Harvey and "Uncle Willie" went abroad for an importation. Among the animals they brought back were the bulls Guinea and Jim-Jams, that have left a numerous progeny of animals of the highest merit.

During the eighties, and while the Turlington herd was in its glory, other breeders were beginning on a modest scale; and the free use of the best bulls as sires of feeders soon brought results in carloads of prime steers which brought the highest prices, and it is to the enterprise of Angus breeders in energetically forcing the merits of their cattle on the public that their present high rank is largely due.

LECTURE XVIII.

ABERDEEN ANGUS.

Points to Be Observed in Judging and Selecting.

The standard of excellence adopted by the Aberdeen Angus Breeders' Association, November 20, 1890, is as follows:

BULL.

Registry in the American Aberdeen Angus Herd Book.

Points.	Counts.
1. Color. —Black. White is objectionable, except on the underline behind the navel, and there only to a moderate extent. A white cod is most undesirable	3
2. Head. —Forehead, broad; face slightly prominent, and tapering toward the nose; muzzle, fine; nostrils, wide and open; distance from eyes to nostrils of moderate length; eyes, mild, full and expressive, indicative of good disposition; ears, of good medium size, well set and well covered with hair; poll, well defined and without any appearance of horns or scurs; jaws clean	10
3. Throat. —Clean, without any development of loose flesh underneath	3
4. Neck. —Of medium length, muscular, with moderate crest (which increases with age), spreading out to meet the shoulders, with full neck vein	3
5. Shoulders. —Moderately oblique, well covered on the blades and top; with vertebrae or backbone slightly above the scapula, or shoulder blades, which should be moderately broad	6
6. Chest. —Wide and deep; also round and full just back of elbows	10

Points.	Counts.
7. Brisket. —Deep and moderately projecting from between the legs, and proportionately covered with flesh and fat -----	4
8. Ribs. —Well sprung from the backbone, arched and deep, neatly joined to the crops and loins-----	8
9. Back. —Broad and straight from crops to hooks; loins, strong; hook bones, moderate in width, not prominent, and well covered; rumps, long, full, level, and rounded neatly into hindquarters-----	10
10. Hindquarters. —Deep and full; thighs, thick and muscular, and in proportion to hindquarters; twist, filled out well into its "seam," so as to form an even, wide plain between the thighs-----	8
11. Tail. —Fine, coming neatly out of the body on a line with the back and hanging at right angles to it--	3
12. Underline. —Straight as nearly as possible; flank, deep and full -----	4
13. Legs. —Short, straight and squarely placed; hind legs slightly inclined forward below the hocks; forearm, muscular; bones, fine and clean-----	4
14. Flesh. —Even and without patchiness-----	4
15. Skin. —Of moderate thickness and mellow touch, abundantly covered with thick, soft hair. (Much of the thriftiness, feeding properties and value of the animal depend upon this quality, which is of great weight in the graziers and butcher's judgment. A good "touch" will compensate for some deficiencies of form. Nothing can compensate for a skin hard and stiff. In raising the skin from the body it should have a substantial, soft, flexible feeling, and when beneath the outspread hand it should move easily, as though resting on a soft, cellular substance, which, however, becomes firmer as the animal ripens. A thin, papery skin is objectionable, especially in a cold climate)-----	10
16. General Appearance. —Elegant, well bred and masculine; the walk square, the step quick, and the head up -----	10
Perfection -----	100

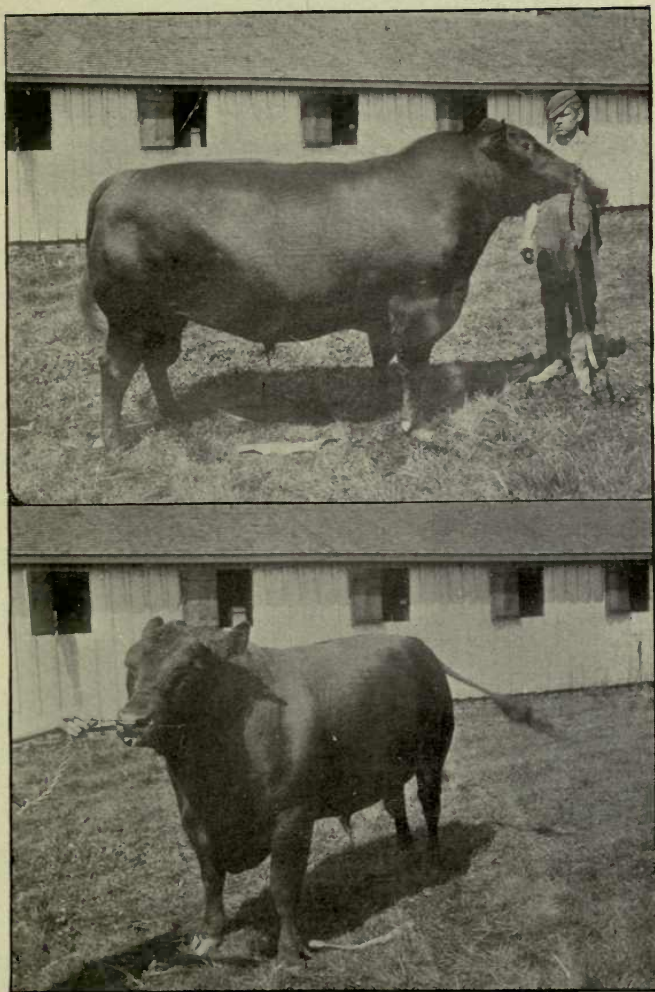


Fig. 22. Juba of Morlich.

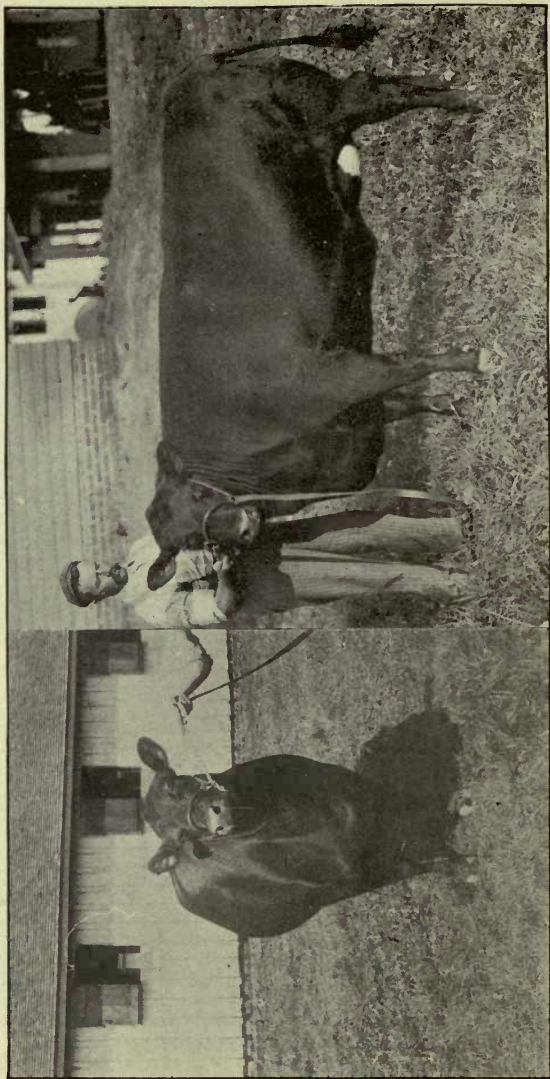


Fig. 23. Vala.
(Breeders' Gazette.)

COW.

Points.	Counts.
1. Color. —Black. White is objectionable, except on underline behind the navel, and there only to a moderate extent -----	2
2. Head. —Forehead moderately broad and slightly indented, tapering toward the nose; muzzle, fine; nostrils, wide and open; distance from eyes to nostrils of moderate length; eyes, full, bright and expressive, indicative of good disposition; ears, large, slightly rising upward, and well furnished with hair; poll, well defined, and without any appearance of horns or scurs; jaws, clean-----	10
3. Throat. —Clean, without any development of loose flesh underneath -----	3
4. Neck. —Of medium length, spreading out to meet the shoulders, with full neck vein-----	3
5. Shoulders. —Moderately oblique, well covered on blades and top; with vertebrae or backbone slightly above the scapula or shoulder blades, which should be moderately broad -----	6
6. Chest. —Wide and deep; round and full just back of elbows -----	10
7. Brisket. —Deep and moderately projecting from between the legs, and proportionately covered with flesh and fat -----	4
8. Ribs. —Well sprung from the backbone, arched and deep, neatly joined to the crops and loins-----	8
9. Back. —Broad and straight from crops to hooks; loins, strong; hook bones, moderate in width, not prominent, and well covered; rumps, long, full, level, and rounded neatly into hindquarters-----	10
10. Hindquarters. —Deep and full; thighs, thick and muscular, and in proportion to hindquarters; twist, filled out well into its "seam," so as to form an even, wide plain between the thighs-----	8
11. Tail. —Fine, coming neatly out of the body on a line with the back and hanging at right angles to it--	3
12. Udder. —Not fleshy, coming well forward in line with the body and well up behind; teats, squarely placed, well apart and of good size-----	8

Points.	Counts.
13. Underline. —Straight as nearly as possible; flank, deep and full -----	4
14. Legs. —Short, straight and squarely placed; hind legs slightly inclined forward below the hocks; forearm, muscular; bones, fine and clean-----	3
15. Flesh. —Even and without patchiness-----	3
16. Skin. —Of moderate thickness and mellow touch, abundantly covered with thick, soft hair. (Much of the thriftiness, feeding properties and value of the animal depend upon this quality, which is of great weight in the graziers and butcher's judgment. A good "touch" will compensate for some deficiencies of form. Nothing can compensate for a skin hard and stiff. In raising the skin from the body it should have a substantial, soft, flexible feeling, and when beneath the outspread hand it should move easily, as though resting on a soft, cellular substance, which, however, becomes firmer as the animal ripens. A thin, papery skin is objectionable, especially in a cold climate)-----	10
17. General Appearance. —Elegant, well bred and feminine; the walk square, the step quick, and the head up -----	5
Perfection-----	100

In judging heifers, omit No. 12 and add three counts to No. 15 and five counts to No. 17.

The foregoing scale of points describes in clear, brief terms the characteristics desired in animals of the highest merit. In actual practice, it should be remembered that strength of constitution in breeding animals is all important, and special heed should be paid to securing animals with deep, wide chests. In bulls there is far too often a tendency to coarseness of shoulder, and to openness at the top of shoulders. This is very undesirable. Symmetry and smoothness are leading characteristics of the breed. This is due largely to the deep and uniform covering of flesh, and should always be apparent; in fact, in well bred Angus the form should be nearly cylindrical, with shoulders and hips so well covered with flesh as to be invisible. The head should be all that the scale of points calls for, and the judge should

never fail to have the animals moved, for while cattle are not expected to show the action of trotting horses, prompt steps showing plenty of vigor indicate that the animal is in good vigorous condition and will, in all probability, be a successful stock getter.

Form, constitution, quality and breed type are the important points in judging and selecting Angus cattle. The first three are clearly brought out by the requirement of the scale of points; and so far as breed type is concerned, the polled head, black color, low set, loggy form, with such wealth of flesh as to render the body almost a perfect cylinder, comprises the essential characteristics.

LECTURE XIX.

GALLOWAY CATTLE.

Origin, History and Development in Great Britain.

Like the Aberdeen Angus, the Galloway has, for a time beyond the memory of man, existed as a polled breed; but as previously pointed out, there is no reason to believe that the polled character would be acquired while cattle remained in a wild state, and it is highly probable, from what we know of the development of other polled breeds, that the polled character first arose in a "sport" and was afterwards perpetuated by judicious selection by men.

From the earliest known times the breed has existed in Galloway, a county in the southwestern part of Scotland, and here it may be said to have originated. This section is about ninety miles in length by forty in breadth, undulating in surface, with some good pasturage, but with much rough land, covered with sparse herbage. The climate is cold and damp, favorable to the growth of a hardy race, for the weaker ones would inevitably perish, or, failing to thrive, be sent to the slaughterers. The climate and food combined to make the Galloway a very hardy, rugged breed, with a coat eminently adapted to protect the animals from the rigors of the climate, but the size was somewhat small owing to a lack of nutritive food. Coarseness of shoulders, high tail heads, and a general lack of finish were among the chief faults, but they were heavy for their size, killed out well, and their flesh was highly esteemed as being of superior texture and flavor.

It cannot be said that the Galloway breed has had any great improvers, as were the Colling Bros. to the Shorthorns, or Tomkins to the Herefords, and the improvement did not begin until long after the other breeds had attained world-wide fame. The quiet, steady efforts of a score or more of leading breeders during the last fifty or sixty years, has

accomplished much in increasing the size, improving the form, quality and finish, and accelerating the early maturity

The hardiness of the cattle and their adaptability to rugged environments have made them favorites in southwestern Scotland and northwestern England; and extensive exportations have also been made to other countries. A characteristic of no slight importance is the coat, which has heavy hair, and a mossy, fur-like under coat, rendering the hides equal to buffalo skins for robes; but there is grave doubt as to whether this character will remain permanent under different climatic conditions. The breed is considered to be one of the purest in existence, and is very prepotent when crossed with other breeds. In Scotland the pure-bred and grade animals are often used to some extent as dairy stock; but their general characteristics, in the modern type, entitles them to classification as a strictly beef breed. The cross produced by using Shorthorn sires on Galloway cows results in vigorous animals, usually of a blue-gray color, that have proved to be of superior merit as feeding animals and butchers' beasts. The good results, however, do not seem to be so apparent on an attempt to breed these cross-bred animals together, or to pure-bred sires of either breed; like other crosses, the results are too variable. The first cross, however, gives good satisfaction, and has been much used.

Originating in southwestern Scotland, the Galloway may fairly be said to have been created in large part by its environments; systematic improvement has been comparatively recent and has followed the lines marked out by other great breeders.

LECTURES XX AND XXI.

GALLOWAY CATTLE.

Introduction Into America, and Points to Be Observed in Judging and Selecting Same.

The first importations of Galloway cattle to the United States were made by Graham Bros., of Ontario, in 1853, and other importations soon followed. In 1861 Thos. McCrae, of Ontario, began importing, and it is largely to his enterprise as an importer that their rapid spread in Canada and the United States is due.

Shrewd men soon foresaw that a breed of such strong prepotency and hardiness would inevitably be in demand for beef purposes, and lost no time in securing animals from the old country, and their spread in the United States has been very rapid.

The scale of points adopted by the Galloway Breeders' Association is here appended:

Color.—Black with a brownish tinge. (Entirely black is not objectionable.)

Head.—Short and wide, with broad forehead and wide nostrils. Without the slightest trace of horn or scurs. (Crown wide, not rising to a point.)

Eye.—Large and prominent.

Ear.—Moderate in length, and broad; pointing forward and upward, with fringe of long hairs.

Neck.—Moderate in length (inclining towards shortness), clean and filling well into the shoulders (in such manner as to make neck and shoulder appear moulded as one piece). The top of neck in a line with the back in a female, and in a male, naturally rising with age.

Body.—Deep, rounded and symmetrical (well spread and of moderate length).

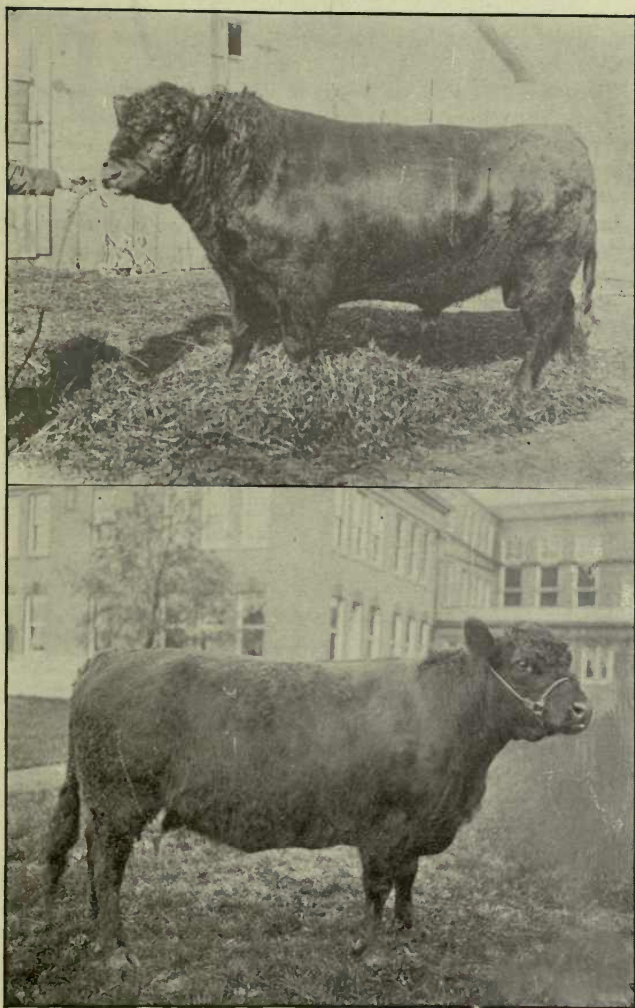


Fig. 24. 1. Druid of Castlemilk. 2. Baroness 2nd of Tarbreoch.

Shoulders.—Smooth and straight, moderately wide above. Coarse shoulder points and sharp or high shoulders are objectionable. (Small, undeveloped shoulders are objectionable.)

Breast.—Full and deep. (Brisket well advanced.)

Back and Rump.—Straight. (Well filled at sides of tail, nearly on a level with tail-head. High tail-head is very objectionable.)

Ribs.—Deep and well sprung.

Loin and Sirloin.—Well filled. (Crops well filled, carrying width of body at ribs and shoulder through on about the same line.)

Hock Bones.—Not prominent. (In fleshy animals invisible.)

Hindquarters.—Long, wide and well filled.

Thighs.—Broad, straight, and well let down at hock; rounded buttocks are very objectionable.

Legs.—Short and clean, with fine bone.

Tail.—Well set on, and carrying a good bush.

Skin.—Mellow and moderately thin.

Hair.—Soft and wavy, with mossy undercoat. Harsh or wiry hair is very objectionable.

During the past few years an evolution in the form of the Galloway has come about, and the scale of points represents the most modern type. In actual judging special heed should be paid to constitution, as there is often a lack of depth and width of chest. The body should be wide throughout, and very symmetrical. The shoulders need close attention, as they are often coarse and open at the top, and a high, coarse tail-head is very objectionable. A weak or low back is sometimes seen, but this is usually due to too great length of body, and is being remedied. Galloway breeders lay special stress on the head, requiring it to be short and wide, with broad forehead and wide nostrils; the crown should be wide, not rising to a point, as in the Aberdeen Angus, and there should be no appearance of horns or scurs. The sex characteristics should, of course, be present, and are practically the same as in other breeds.

Animal Husbandry *Series*

PART II.

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ANIMAL HUSBANDRY SERIES.

PART II. NO. II.

LECTURES

ON

LIVE STOCK JUDGING

AND THE

History, Development and Characteristics of
the Various Breeds of Live Stock

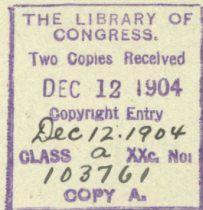
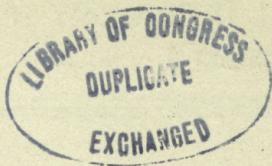
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LECTURE XXII.

DUAL PURPOSE CATTLE.

Points to Be Observed in Selecting and Judging the Same.

The dual purpose animal has already been mentioned as one adapted to produce a good flow of milk, at the same time possessing such conformation as will ensure the making of a profitable carcass of beef. Such an animal is adapted to conditions intermediate between the extremes of beef raising and dairying.

Beef conformation is clearly understood; width of body, spring of rib, and length and width of hindquarters are essential, and with this there must be natural flesh present on the valuable parts. The weight of authority indicates that an animal born with natural flesh will always possess it as long as food is supplied in reasonable quantities; and the experience of hundreds of successful breeders shows that cows of beef form, with a wealth of natural flesh, may yet be good milkers.

The milking properties, while also inherited to a very considerable degree, may be modified and improved far more by feed and management than the beefing properties can be; for it is possible to take a heifer of excellent beef form, with plenty of natural flesh, and by having her calve at a period of the year when green feed is most abundant, and by milking her for a long period for the first year, to develop her dairy qualities to a very considerable extent; but it is impossible to take an animal lacking in beef form, and

natural flesh, and make a desirable carcass of beef from the same by any system of feeding and management.

Difficulty has often arisen in the show ring, from a failure on the part of the judge, to recognize both qualities. In many cases they have been judged with a total disregard of dairy qualities; while in other cases judges have made the still worse error of entirely disregarding beef form and natural flesh.

A happy combination of beef and dairy qualities is desired. The form should be deep, with good width of chest; the ribs long and well sprung, giving good width of back and a large barrel, ensuring capacity to utilize large quantities of feed. A straight top line is as essential as in the beef breeds, but the under line is not expected to be as straight, owing to a lighter hind flank; the fore flank, however, should be as well filled out as in any other class of stock. The hindquarters should be wide, the rump long and well filled; the thigh, however, is lighter, and the twist not filled down as in beef bred animals for this space is required for the udder. The shoulders are finer and more closely laid in to the spinal column than in beef cattle; the neck should be of moderate length, and more refined than in beef cows; the head should be of moderate length and breadth, the face somewhat concave between the eyes, and on the whole somewhat finer and less meaty than in beef cattle. Constitution must receive special attention, and a deeper chest than usual is expected, with somewhat less width than in beef stock. The bone is finer, and the skin softer and more pliable to the hand, being somewhat lighter than in beef animals. A good covering of natural flesh over the valuable parts must be looked for; its presence indicates that the cow will, when the flow of milk ceases, divert her food to the production of a good beef carcass. The milking properties, while indicated to some extent by the large barrel, lighter thighs, and finer skin, are chiefly determined from the udder and milk veins. The udder should be large, extending well up behind between the thighs, and attaching high. It should also extend well forward on the belly, and should be well balanced—that is, the quarters should be of approximately the same size and shape. The teats should be placed well apart, and should be of such size as to be conveniently grasped by the hand. The milk veins should be large, tortuous, and branching, and

the milk wells should be large. The skin covering the udder should be soft and pliable, and the hair short and silky. The udder should not appear fleshy, but should appear relaxed when milked out.

In general work, it will often be found difficult to find an animal of the desired type, as there is yet a considerable tendency to variation toward too great beef or dairy characteristics. In actual work in the show ring, or in buying, it is well to pick the animal which most nearly meets the required type; and place the others in their order of merit. At least 65 per cent. should go to form, and general beef characteristics; while 35 per cent. may justly be credited to the dairy properties as shown in the conformation of the hindquarters, and by the udder and milk veins.

The foregoing applies to cows; and in judging bulls the same general characteristics should be observed so far as general form, constitution and quality is concerned. The indications of ability to sire good milch cows should be apparent in the fine, pliable skin, and large barrel. The rudimentaries should be well developed and placed evenly and well apart, for experience has shown that bulls so characterized beget cows with well balanced udders. The masculine characters should be present, as indicated by the heavier forequarters, powerful crest, and burly head.

A happy medium in form and milking properties is desired in dual purpose cattle. Due attention to the correct characteristics, and a resolute adherence to a balanced type, combining both beef and dairy properties, is all that is required.

LECTURE XXIII.

RED POLLED CATTLE.

Origin, History and Development in Great Britain.

The origin of this breed is unusually interesting, in that it shows the results obtainable by skilful crossing, and breeding for a definite end.

Norfolk is a district in eastern England, and lies along the sea shore. The land is comparatively poor, and not adapted to the maintenance of the large breeds of cattle. The first authentic records we have of agricultural conditions here, date to the close of the eighteenth century, when John Marshall, in describing the cattle of Norfolk, states that they were a small, hardy, thriving race, and that they were "the Herefordshire breed in miniature." The favorite color was blood red, with a white or mottled face. They were clean-horned, fine-limbed cattle, and Marshall states that they fattened as freely and finished as highly at three years old as cattle generally did at four or five. He makes no mention of their milking qualities, and it is just to conclude that these were poor, for he was a very close observer. His statements leave no doubt but that he believed that only care and selection was needed to make these clean-limbed, blood red cattle, prime beef animals.

The district of Suffolk lies more inland than Norfolk, and is separated from it by marshes; the population of Suffolk consisted of the Angles from the continent, who brought their household goods, agricultural implements, and cattle with them when they came to England. These people were

home-loving, and had little to do with those of Norfolk, who were chiefly of Danish or Norse origin. The land of Suffolk is richer than that of Norfolk, and the differences mentioned served to tend to the development of entirely different breeds.

The cattle in Suffolk in 1792 (our first written records) are described as being "universally polled," and the traditions handed down at that time by the oldest inhabitants indicate that such had been the character of the breed for at least one hundred years previous. Suffolk was from the earliest times a dairy district; in 1732 written accounts speak of the excellent butter and cheese made there; and it has remained as a dairy district ever since. From such comments as can be gleaned from the earlier writers, it is evident that in addition to being polled, the cattle of this district were rather large, and inclined to be somewhat coarse and loosely put together; but their dairy qualities were most excellent.

Whence these polled animals came we know not; but there seems to be good reason to believe that they were the descendants of some of the polled cattle found on the continent in early times. These had probably acquired the polled character in the same manner as the Galloway and Aberdeen Angus; but this is a matter of little importance.

Some of the Suffolk polled cattle were gradually working their way into Norfolk, but the leading farmers there desired to unite the polled character and milking qualities of the Suffolk cow to the beef form, fleshing properties, and early maturing properties of the Norfolk clean-limbed cattle.

The earlier results of such crossing do not appear to have been looked upon with favor by such good judges as Marshall. Some of the Norfolk farmers began to introduce the Devons, but Jonas Reeve of Wighton, and his neighbor, Richard England of Norfolk, did not consider the Devons well adapted to the poor soils and unfavorable environments of Norfolk and resolutely pursued their attempt to combine, by crossing, the good characteristics of the Norfolk and Suffolk breeds. No data is at hand as to the exact course pursued; but it is known that they worked for years ere succeeding. In 1808, they were able to exhibit a bull which approached the type they were seeking; and in 1810 they exhibited a bull and two-year-old heifer that captivated all who

saw them. The work was carried on until 1828, when Mr. Reeves held a dispersion sale. By this time the breed had obtained a firm foothold and rapidly increased. The polled character, blood, red color, and early maturity, became firmly fixed; but in the earlier years of breeding, after Reeves' guiding hand had left the helm, the beef form was nearly lost sight of, many breeders believing that a wedge shaped form was absolutely essential to dairy capacity. It remained for two Norfolk tenant farmers to correct this, and Benjamin Pond of Dunham, and Nicholas Powell of Snoring, bred resolutely to secure the excellent beef form, deep flesh, and early maturity of the old Norfolk sort, with the polled head, deep milking capacity, and blood red color of the new polled breed as bred by the breeders who followed Reeves.

Pond died early in his work, but Powell continued breeding for forty years, and seems to have exercised rare skill and judgment. He produced what was practically the original Norfolk breed, plus the polled character and milking properties of the old Suffolk. And such is the characteristic of the Red Poll of Great Britain, evolved from composite elements by skilful crossing and selection for a definite end.

LECTURES XXIV. AND XXV.

RED POLLED CATTLE.

Introduction Into America.

While there are accounts of the transfer of some of the Norfolk and Suffolk cattle to America, with the early colonists who came over before the Revolutionary War, and of some small importations in the early part of the last century, the first definite accounts that we have of an importation of any considerable size is in 1873, when Gilbert F. Faber of Putman County, New York, imported some. He made other importations in the years following, and seems to have pushed the merits of the breed before the public, for other importations began in the early eighties, and the breed has spread rapidly over the United States and, to some extent, in Canada. The cows have demonstrated their ability as milk and butter producers at the Columbian and Pan-American Expositions, as well as in many other tests of lesser note, and the steers fatten smoothly and readily, and prove profitable killers.

No essential modification in type has occurred since importations to America were begun, save for an increase in size, due to the more favorable environments, and to the desire of American breeders to have animals that will bring a handsome cash return as milk producers or in the beef market. The dual purpose character has been held to with considerable success, and while variations toward the decided beef or dairy type occasionally occur, a fairly well fixed type has been established.

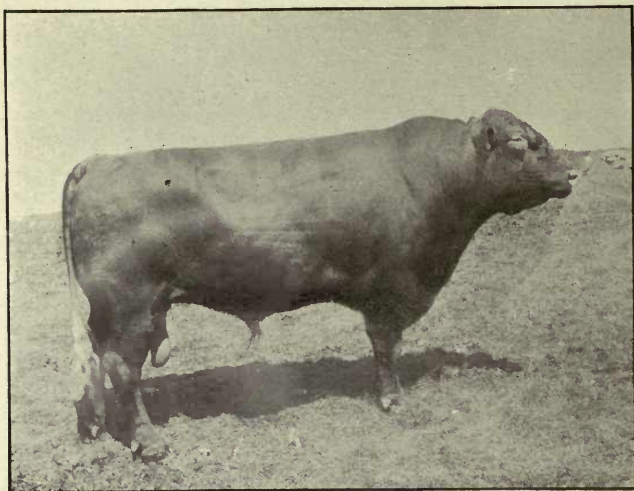


Fig. 25. Red Polled Bull, Falstaff 3rd.

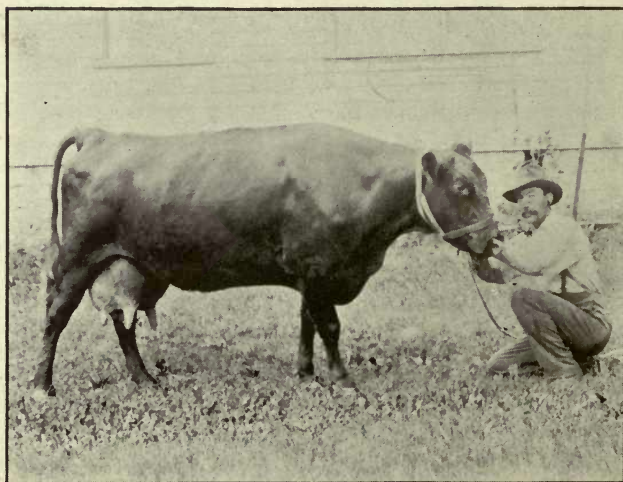


Fig. 26. Red Polled Cow, Red Tip.

Points to Be Observed in Judging and Selecting Red Polled Cattle.

Head. Should be wide between the eyes, moderate in length, arising to a sharp poll at the top. In cow should be somewhat concave between the eyes; in bulls full and burly. There should be a clean cut, refined appearance to the head as a whole; the eyes should be large, bright, and mild; the ears of moderate size and well carried.

Neck and Shoulders. The neck should be moderate in length, not so long as Holsteins or Jerseys, nor yet so short as in the beef breeds. It should be fairly free from coarseness or loose flesh, and should swell gently into the shoulder, with quite a full shoulder vein. The shoulders should be comparatively fine, well sloped and fitting smoothly into the body at the top, the spinal column should rise slightly above the shoulder blades, the whole blending smoothly together. In the bull the same smoothness should be observed, but the forequarters are heavier, and the neck larger, with powerful crest.

Body. The body should be deep and round barreled, having well sprung ribs, especially just behind shoulders, and a capacious abdomen, well calculated to utilize large amounts of food. The back should be straight, the loin wide, the hook bones not extremely prominent, as in the Holsteins, nor yet blending so closely into the body as to be entirely hidden with flesh; rather an intermediate between these extremes. The rump should be long, level, and quite well filled with flesh in the space from the hook points to the pin bones.

Hindquarters. The thighs should be wide as viewed from the side, and well muscled. From behind, the hindquarters should show considerable width, and while the twist cannot be fleshed down as deeply as in the beef breeds, there should be a fairly good muscular development.

Limbs. The legs should be short and straight, and the bone fine and clean.

The color should be a deep blood red over all parts; some white in the switch is permissible, but if found on any part of the body, is objectionable. The skin should be of moderate thickness, and very soft and pliable to the hand. The hair is short, fine, and silky to the touch.

The udder should be fairly large, extending well up behind, and well forward on the belly; should be well balanced with teats of convenient size and shape; and the milk veins should be very large, tortuous—arising in knotted puffs. The milk wells should be numerous and large.

The foregoing points apply to bulls as well as to cows, but in the hindquarters is to be expected less width, and the indications of milking qualities are indicated by the size of barrel, and by the rudimentary teats, which should be well developed.

The chief defects that must be guarded against are a lack of depth and width in the chest, tending to weak constitution; a barrel of insufficient size to utilize large amounts of food; and a tendency which, at times, appears to inferior milking properties. This is shown in poorly developed udder, small milk veins, and an undue fleshiness of the hindquarters.

Form, constitution, quality, and milking capacity must all be considered. For the first three, 65 per cent. may well be allowed, and 35 per cent. for milking qualities.

LECTURE XXVI.

DEVON CATTLE.

Origin, History, and Development in Great Britain.

So far as all records and traditions go the Devon breed has existed from the earliest times in the counties of Devon and Somersetshire, England. Two types were recognized in the earlier days. These were known as the North Devon and South Devon.

The nature of the country has doubtless had much to do with the peculiarities of the breed. The country is rather elevated, land inclined to be poor, and the climate rather rigorous, being damp and chilly. Such a locality was not well adapted to the maintenance of the larger beef breeds, nor yet so severe as to render necessary the introduction of the mountain breeds.

The North Devons were described in early times as a small, hardy race, with curly coats of a dark red color. They were active, well adapted to the plough, and fattened readily and very smoothly, developing into an excellent carcass of beef.

The South Devon was a larger animal, more wedge shaped, and there seems to be clear evidence of a considerable introduction of Guernsey blood, which doubtless aided materially in increasing the milking capacity. The South Devon blood was used to some extent in the improvement of the North Devon, and the modern type really represents the old North Devon type improved by selection and by the introduction of the blood of some of the best South Devons. Sir Francis Quartly of Great Shampson was the most notable improver of the breed. He drew the best cows from all sources, buying many in the public markets. He bred for increased size,

superior beef making capacity, and paid due heed to the milking qualities; was very successful in accomplishing his purpose, and inspired many others to take up the work of improvement.

The development since the early part of the last century has been gradual, but steady, and has been accomplished for the greater part by tenant farmers. The Devons have been shown but little, but when properly fitted have made a very creditable showing.

Introduction Into America, and Points to Be Considered in Judging Devons.

Traditions tell us that some Devons were brought over by New England colonists as early as 1800; but the first definite accounts relate to an importation made by G. Patterson of Maryland in 1817. The cattle were really imported by his father and brother, but passed into his control soon after, and he controlled their breeding. Three heifers and a bull were in this first shipment. These and their progeny were bred without introduction of fresh blood until 1835, when G. Patterson imported a bull, and subsequently made other importations.

Other breeders made small importations in the years from 1818-1830; but no considerable amount of importing was done until near 1850. Importations since then have been gradual but steady, and the Devons at present are quite well distributed in the United States and Canada. They have been bred with the same end in view as in England, but have been increased in size to a considerable extent; and while they have never been pushed prominently before the public, it is doubtless due, in some degree, to the fact that they have been in the hands of small owners.

The following points should govern the judging and selection of Devons:

Standard of Excellence for Devon Bull—Adopted by Devon Cattle Breeders' Society, England, 1896.

Registered pedigree.

Head.—Masculine, forehead broad, tapering towards the nose, which should be flesh-colored; nostrils high and open, muzzle broad; eyes full and placid; ears medium size and

thickness, fringed with hair; horns growing at right angles from the head or slightly elevated, stout and waxy at the base, tipped with a darker shade. Cheek full and broad at the root of the tongue. Throat clean.

Neck.—Of medium length and muscular, growing from the head to the shoulders and spreading out to meet them.

Withers.—Fine, shoulders flat, sloping and well covered.

Chest.—Deep, broad and somewhat circular in character.

Ribs.—Well sprung from the backbone, nicely arched, deep and fully developed.

Back.—Straight and level from the withers to the setting on of tail, loins broad and full, hips of medium width and on a level with the back.

Rumps.—Moderately long, thick and square.

Hindquarters.—Deep, thick and square.

Tail.—Thick at the root, and tapering with a brush of strong hair, reaching to the hocks and hanging at right angles with the back.

Underline.—As nearly as possible parallel with the top.

Arms and Thighs.—Muscular.

Legs.—Straight and squarely placed when viewed from behind, not to cross or sweep when walking.

Skin.—Moderately thick and mellow, covered with an abundant coat of rich mossy hair of red color; a little white in front of the purse is admissible; but it should not extend beyond the navel forward, on the outside of the flanks, or any part of the limbs or body.

**Standard of Excellence for Devon Cow—Adopted by Devon
Cattle Breeders' Society, England, 1896.**

Registered pedigree.

Head.—Moderately long, with broad indented forehead, tapering considerably towards the nostrils; the nose of a creamy white, the nostrils high and open, the jaws clean, the eye bright, lively and prominent; throat clean, ears thin, the expression being gentle and intelligent; horns matching, long, spreading and gracefully turned up, of a waxy color tipped with a darker shade.

Neck.—Of medium length, growing from the head to the shoulders, and spreading out to meet them.

Withers.—Fine, shoulder flat, sloping and well covered.

Ribs.—Well sprung from the backbone, nicely arched, deep and finely developed.

Back.—Straight and level from the withers to the setting on of the tail, loins broad and full, hips of medium width and on a level with the back.

Rumps.—Moderately long and level.

Hindquarters.—Deep, thick and square.

Udder.—Not fleshy, coming well forward in line with the belly and well up behind; teats moderately large and squarely placed.

Tail.—Thick at the root and tapering, with a brush of strong hair reaching the hocks and hanging at right angles with the back.

Underline.—As nearly as possible parallel with the top.

Legs.—Straight, squarely placed, when viewed from behind, not to cross or sweep when walking.

Skin.—Moderately thick and mellow, covered with an abundant coat of rich mossy hair of a red color; white about the udder is admissible, but it should not extend beyond the navel forward, on the outside of flanks or any other part of the limbs or body.

In actual work in the show ring considerable stress should be laid on milking qualities; for the only claim the Devon has to recognition is as a dual-purpose breed, for in beef making capacity there are other breeds so manifestly superior that no one would breed Devons for beef alone. For this reason indications of milking properties should be carefully heeded, and while endeavoring to secure a smooth, well proportioned beef form, a fair sized udder, and large tortuous milk veins should be looked for, and considered in judging or selecting cows.

LECTURE XXVII.

POLLED DURHAM CATTLE.

Origin, Development, and Correct Type.

This breed is of special interest to every one, for it is the only purely American breed of cattle, and has been evolved in such recent times that the full history of its origin and development is at our command.

Two distinct lines of breeding are entitled to registry in the Polled Durham herd book. The first includes the animals that contain some blood other than pure Shorthorns; the other is spoken of as double standard, and consists of pure-bred Shorthorns from which the horns have been eliminated.

Work in building up the first strain was begun in or about 1870 by Dr. W. W. Crane of Tippecanoe, Ohio. His aim was to produce a Shorthorn in all respects save horns. He, accordingly, secured all the polled cows or "mulleys" he could get. These have been known in all countries, in practically all times, but usually appear with more or less intermittency; that is, the polled characteristic sometimes appeared, and then would skip a generation or two. The only reasonable hypothesis is that these animals arose from occasional sports.

On such polled cows as he could secure, approaching in type to the Shorthorn, Dr. Crane proceeded to cross good Shorthorn bulls; these bulls possessed horns, but a fair proportion of the progeny did not, and by steady work, selecting only those heifers which had the polled characteristic,

and that were close in type and color to pure-bred Shorthorns, a type was finally evolved. The plan of using pure-bred Shorthorn sires was followed for five or six generations, until the type so closely approached the typical Shorthorn that it was deemed advisable to reserve a bull of the new type, and put him to the heifers. From the nature of the breeding operations, it is evident that these cattle were soon very high grade Shorthorns; and the herd book requirements provided for a gradual raise in the per cent. of Shorthorn blood present, until in 1899 no new animals could be admitted to registry without proof of at least 96 $\frac{7}{8}$ per cent. Shorthorn blood; and the most recent rulings made in 1902, and published in 1903, require that all animals, to be eligible to registry, must be in the offspring of animals recorded in the Polled Durham Herd Book, or of animals, one of which shall be recorded in the Polled Durham Herd Book, and the other in the Shorthorn Herd Book.

The other strain of Polled Durham, known as double standard, sprang from the Shorthorn cow, Oakwood Gwynne. She was owned in the Hillhurst herd of Col. King of Minnesota; was a light roan cow of excellent individuality, but had abortive horns or scurs. When bred to pure-bred Shorthorn bulls she produced two polled heifers, twins, and later a polled bull, none of which showed the slightest indication of horns.

W. S. Miller of Ohio bought these cattle in the spring of 1888 and used the bull, King of Kine, on these cows, which were half-sisters to him, and also on pure-bred Shorthorn cows that possessed horns. A very high percentage of the calves from the horned cows were hornless; and Nellie Gwynne, one of the polled heifers, dropped to the service of King of Kine the bull calf Ottawa Duke, which Mr. Miller used freely on his herd. As indicative of the concentration of blood represented in Ottawa Duke, it is stated all his calves, even from horned cows, were hornless. The work of building up such a herd was necessarily somewhat slow; but the work has been successfully carried out, as the large numbers of Polled Durhams now testify.

Careful selection for a high degree of individual merit has characterized the work of the best breeders. Disappointments were frequent; for example, out of twenty-four calves, bred by Dr. Crane, the result of two years' work, twenty-

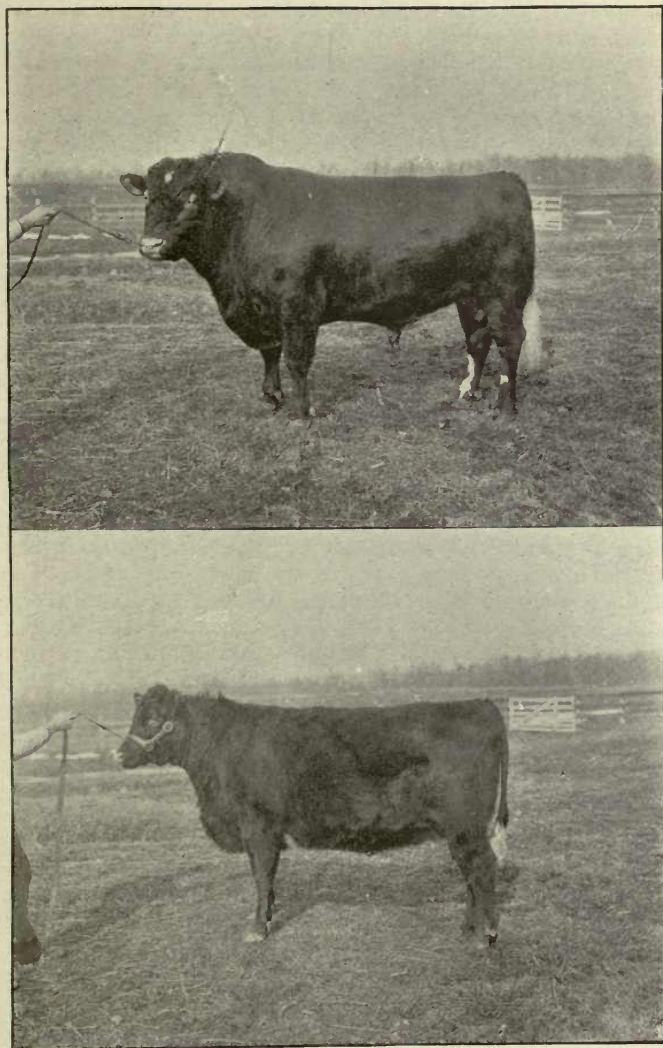


Fig. 27.

1. Polled Durham Bull, Tippecanoe 44th.
2. Polled Durham Heifer, Ruby of Buttonwood.

three were bulls, and the one heifer had scurs; and as no grade bulls were used, the two years' work went for naught.

No scale of points has ever been adopted for the breed; but the aim of the breeders has ever been to approximate the Shorthorn type as closely as possible; in the evolution of the breed, the milking properties have been fairly well developed, and the breed is entitled to rank as a dual purpose one, and is judged accordingly.

Scale has ever been considered a prime requisite in the breed, and the same size and weight for age as in Shorthorns should be looked for. The form should be deep, wide and low set, with strong spring of rib, wide loin, straight top-line, a long, level rump, and deep, well-fleshed thighs, and a well filled twist. The shoulders are often inclined to coarseness, and special attention should be paid to this, for a smooth, compact shoulder, blending nicely into the body, is a desirable feature in any beef animal. In cows a large udder, carried well up behind, and blending smoothly into the belly in front, is desired. The teats should be of convenient size and well placed; and the milk veins large, tortuous, and branching, entering the body by large milk wells. Cows that are in milk cannot be expected to show the same depth of flesh that should characterize the beef-bred animal when in high condition, but natural flesh should always be present, particularly in the regions of valuable cuts.

The head should be broad, moderately short, with a rather broad, rounding poll, without any indication of scurs; and the neck should be short, full, and blending smoothly into the shoulders. The differences due to sex should, of course, be present; they are precisely the same as in Shorthorn cattle, save for the absence of horns.

LECTURE XXVIII.

BROWN SWISS CATTLE.

Origin, Introduction Into America, and Points to Be Observed in Judging and Selecting the Same.

In the rocky cañons and mountain-bound valleys of Switzerland, this breed was first known, and so far as our knowledge goes it has always existed in practically its present form, though without doubt improvement has been made. The air is high and pure, and the country is unexcelled in luxuriance of pasturage; but as the pastures lie almost wholly on the mountain sides, considerable vigor is needed in the cattle that are to consume this pasturage. The Swiss feed no concentrates, maintaining their cattle on grass and hay the year round. Dairying, especially cheese-making, is a leading occupation, and the Brown Swiss cattle have long been known as excellent milkers. A considerable rivalry has always existed between the different cantons of Switzerland in all matters pertaining to their well being. This has had its effect in one way in spurring the breeders to greater efforts in keeping up a high standard of individual excellence in their herds; and this has resulted, in connection with the natural environments, in producing a breed of cattle that are hardy, with magnificent constitution, as evidenced by the great depth and width of chest. They are also well developed in a muscular sense, and, having been milked extensively, have excellent qualities in this respect. They were first introduced into the United States by Henry M. Clarke of Massachusetts in 1870. He brought over a bull and seven heifers, and a considerable progeny arose from

these. No other importations were made until in 1882, when importations were made by Mr. Geo. W. Harris of Connecticut, the cattle being selected by a Mr. Scott, who had studied the breed, and believed it well adapted to the New England States. In 1883 and following years Mr. Scott selected other importations. These were sold, as was the 1882 importation, to the New England breeders, and soon demonstrated their usefulness. Other importations have taken place at various times since, and the breed has slowly gained; in the East, solely because of the hardiness of the cattle and their milking qualities, while in the Central West, their adaptability to dual purpose requirements have been recognized and seized on.

The scale of points is as follows:

Adopted by Breeders' Association.

	Points.
1. Head. —Medium size and rather long.....	2
2. Face. —Dished, broad between the eyes and narrow between the horns.....	2
3. Ears. —Of a deep orange color within.....	1
4. Nose. —Black, square, and with the mouth surrounded by a light, meal-colored band, tongue black.....	2
5. Eyes. —Full and placid.....	1
6. Horns. —Rather short, flattish and regularly set with black tips	5
7. Neck. —Straight, rather long and not too heavy at shoulders	4
8. Chest. —Broad and deep.....	4
9. Back. —Level to the setting on the tail and broad across the loin.....	6
10. Barrel. —Hooped, broad and deep at the flank.....	8
11. Hips. —Wide apart, rump long and broad.....	4
12. Thighs. —Wide with heavy quarters.....	4
13. Legs. —Short and straight with good hoofs.....	4
14. Tail. —Slender, pliable, not too long, with good switch	4
15. Hide. —Thin and movable.....	3

- | | |
|--|---------|
| 16. Color.—Shades from dark brown to light brown, and at some seasons of the year gray; slight splashes of white near udder, not objectionable; light stripe along the back..... | 6 |
| 17. Hair.—Between horns light, not reddish; hair inside of ears light | (None.) |
| 18. Fore Udder.—Full in form and carried up reaching far forawrd on the abdomen..... | 10 |
| 19. Hind Udder.—Not too deeply hung, full in form and well up behind..... | 10 |
| 20. Teats.—Rather large, set well apart and hanging straight down | 5 |
| 21. Milk Veins.—Prominent | 4 |
| 22. Escutcheon.—High and broad and full in thighs (P. 118.) | 7 |
| 23. Disposition.—Quiet and good natured..... | 4 |

 100

In judging bulls and heifers, omit Nos. 18, 19, and 20; and for color they should be dark brown.

The above scale is quite clear in stating the requisites of a choice animal. In actual judging it is well to look closely to a well developed beef form, and for quality; for the breed is as yet somewhat coarse from a profitable beef standpoint. The especially good features of the breed are great hardiness, freedom from lung troubles, and an ability to utilize large amounts of rough feed to good advantage. All these are important in a dual purpose breed, and the Brown Swiss promises to fulfill this place to good advantage. They have not yet been exhibited to any considerable extent at our great shows, but have discharged themselves creditably in dairy contests at the Pan-American Exposition, ranking especially well in the production of solids. Dual purpose qualities, with great hardiness and vigor, characterizes the breed.

LECTURE XXIX.

DAIRY CATTLE.

Points to Be Observed in Judging and Selecting the Same.

The Dairy cow, in her highly specialized form, may be considered as a manufacturing plant wherein raw products, such as grains and fodders, may be transformed into a food available to man.

There are two portions of the body which are of chief importance as manufacturing centers. These are the stomach and udder.

The stomach receives the food from the alimentary canal; the food is softened, mixed, and retained in the first stomach, the rumen, until soft, and is stored here until the animal is ready to masticate it more thoroughly. It is then sent to the mouth, where it is chewed, and sent back to the second stomach, the reticulum. From here it passes to the third, omasum, and then to the fourth or true stomach. During this time it is acted upon by the juices of the salivary glands, and upon reaching the true stomach, abomasum, it is acted upon by the gastric juices which change the albuminoids into peptones. After leaving the fourth stomach it passes to the small intestines, where it is acted upon by the bile and pancreatic juices, and is rendered available for absorption by the blood. The food, thus digested, now passes through the walls of the small intestine, into the circulation, and is carried by the blood to all parts of the body, the nutritive elements in the blood being utilized by the various organs and tissues.

The udder consists of two large masses of glandular struc-

tures, separated by a strong fibrous band running longitudinally of the body. These two large masses of glandular structures are again subdivided, though not absolutely, and from each of the quarters so formed a teat extends.

The exact structure of the udder is perhaps easiest understood by viewing it from an external standpoint. The teat has a small canal leading up through it; a small muscle (sphincter) controls the flow from this canal; at the upper end of the teat a cavity, variable in size, is found. This serves to hold milk as it is secreted, and is known as the milk reservoir; from it, large ducts branch to all parts of the udder. These branches constantly subdivide, and each one finally enters one of the glandular structures referred to above; within this glandular structure it divides into innumerable branches which have as lateral or terminal enlargements other small glandular structures known as alveoli. The alveoli are lined, internally, by epithelial cells, which are believed to play the most important part in the secretion of the milk. The structure of the udder may be likened to a great river system in which the alveoli are springs, their capillaries small creeks, the junction of these into one large duct leading from each glandular structure, as the junction of all the creeks of some river basin into one river, and the large ducts flow to the milk reservoirs as large rivers flow to a lake.

Such, in brief, is the structure of the udder; and careful experiments have established two facts:

1st. The amount of milk secreted increases with the flow of blood through the udder.

2d. This flow of blood is controlled, in a large part, by the nervous system; and while the nerves act reflexly for the most part, they are under the control of the cow when she sees fit. This explains the "holding up of the milk" by cows when excited or irritated.

The old idea concerning the udder was that it merely acted as a filter for the blood; but chemical analysis has shown that this is impossible, and that certain manufacturing processes go on in the udder. The precise nature of these is not yet definitely known; but it appears that the casein, fat, milk sugar, albuminoids, and part of the ash of milk are manufactured in the udder from the constituents of the blood; and that the alveoli of the gland-lobules are of chief

importance in this secretion. It is also held, by some authorities, that the fat results from the fatty degeneration of the free ends of the epithelial cells of the alveoli; but this is not yet regarded as proven. The secretion of milk is considered to be constant, but most active during the time of milking.

Since the flow of milk depends primarily upon the number, activity and efficiency of the milk glands, and secondly upon the flow of blood to the udder, and the nutrients contained in the blood, it is clear that the stomach and udder deserve the importance attached to them; and since the nervous system is closely co-ordinate to the digestive system and directly controls, to a considerable degree, the flow of blood to the udder, it also deserves attention.

Since the abdomen and udder are the chief manufacturing points, it is but natural that extreme development in these parts should be sought for; and inasmuch as meat carrying capacity and inclinations are not considered essential in highly specialized dairy cows, these have been neglected. This has resulted in a general type, that has been found to be good in milk production; and this is considered, and the importance of the different points indicated in the following scale of points:

Scale of Points. Dairy Cow.

GENERAL APPEARANCE: Perfect Score.

1. **Weight**
2. **Form.**—Inclined to be wedge-shaped..... 6
3. **Quality.**—Hair fine, soft; skin mellow, loose, medium
4. **Condition.**—Lean, though vigorous, appearance when
in milk 6

HEAD AND NECK:

5. **Muzzle.**—Clean cut; mouth large, nostrils large..... 1
6. **Eyes.**—Large, bright, full, mild..... 1
7. **Face.**—Lean, long, quiet expression..... 1
8. **Forehead.**—Broad 1
9. **Ears.**—Medium size, yellow inside, fine texture..... 1
10. **Horns.**—Fine texture, waxy..... 1

11. **Neck.**—Fine, medium length; throat clean; light dew-lap 1

FOREQUARTERS:

12. **Withers.**—Lean, thin 1
 13. **Shoulders.**—Light, oblique 2
 14. **Legs.**—Straight, short; shank fine..... 2

BODY:

15. **Chest.**—Deep, low; girth large with full fore flank.... 10
 16. **Barrel.**—Ribs broad, long, wide apart; large stomach 10
 17. **Back.**—Lean, straight, open ojinted..... 2
 18. **Loin.**—Broad 2
 19. **Navel.**—Large 2

HINDQUARTERS:

20. **Hips.**—Far apart, level..... 2
 21. **Rump.**—Long, wide 2
 22. **Pin Bones or Thuris.**—High, wide apart..... 1
 23. **Tail.**—Long slim; fine hair in switch..... 1
 24. **Thighs.**—Thin, long 4
 25. **Escutcheon.**—Spreading over thighs, extending high and wide; large thigh ovals..... 2
 26. **Udder.**—Long, attached high and full behind, extending far in front and full, flexible; quarters even and free from fleshiness..... 20
 27. **Teats.**—Large, evenly placed..... 5
 28. **Mammary Veins.**—Large, long, tortuous, branched with double extension; large and numerous milk wells 5
 29. **Legs.**—Straight, short; shank fine..... 2

Total100

This scale of points as given above serves to call attention to the various parts of the body structure and indicates their relative importance. As pointed out before, there is no reason why a dairy cow must be narrow in front or wedge-shaped; but because of the extreme development of certain

portions of the body, and neglect of other portions, such a wedge-shaped type has resulted, and is considered desirable by dairy men. The refinement about the head and neck, and the lightness of the forequarters, indicates that the animal is not disposed to lay on flesh, but rather devoted her food to milk-making. The importance of strong constitution has already been pointed out, and this is secured in the dairy cow by a deep chest, with good spring of rib. Thus in the beef animal the strength of constitution is secured by a deep, wide chest of cylindrical form; in the dairy cow, by a deeper chest, egg-shaped, with large end down. As the supply of nutriment furnished through the blood to the mammary glands is governed by the efficiency of the digestive organs, a large barrel is very desirable, and is ensured by long well-sprung ribs, set wide-apart. The open-jointedness of the back is merely an indication of the general openness of the skeleton, which, as it gives a large, roomy body, large for weight, is considered desirable. The broad loin accompanies width of hindquarters and a roomy barrel. The young animal is nourished before birth by blood vessels passing through the navel, and if large, it is considered to indicate that the foetus was well nourished before birth; and as an animal born strong and vigorous invariably makes a better animal than one born weak, there is some reason back of the demand for a large navel. The width of hips, length and width of rump, and width between the pin bones, are all indicative of a large, roomy pelvic region, well adapted to sustain the udder, and to the demands made upon the female in giving birth to young.

Viewing the cow from behind and on the inside of the thighs it will be noted that the hair inclines to grow in an opposite direction from that on other parts of the body. The portion so noted is known as the escutcheon, and its importance is due to the fact that it is to some degree indicative of flow of blood to the udder. It is believed that a well developed escutcheon is only found in connection with large arteries.

Knowing the structure of the udder and the relation of the glandular structures within to the milk secretion, it is clear that a long udder, containing a great number of the glandular structures which make up the milk glands, is favorable to a large secretion of milk; and this length of udder is secured

by a high attachment behind, and by the extension well forward on belly, of the udder. Inasmuch as there should be, in the udder, only glandular structures, connective tissue, blood vessels, nerves, and such fibrous tissue as is necessary to sustain the udder, no fleshiness should be apparent; if present, it indicates the presence of an unnecessary amount of tissue, which can be of no use, and which may interfere with the working of the milk-secreting glands. The teats merely serve to draw the milk from the udder, and the only necessary requirement is that they shall permit of the passage of a good stream of milk, and shall be of a size easily grasped by the hand. The milk veins discharge most of the blood which passes through the udder, and hence are useful in determining the blood flow. Large, long, tortuous milk veins, branching and entering the body by large milk wells, almost invariably characterize heavy milkers.

In conclusion, it should be clearly borne in mind that judging dairy cows by individuality is only an approximation to accurate results, and while it is possible to distinguish between good milch cows and those of medium or inferior milking capacity, the only absolutely accurate test between good milch cows must be secured by means of the scales and the Babcock test.

In judging dairy bulls the same general form (modified only by sexual differences) and quality must be looked for as in cows. A bull's merit, from a dairy standpoint, depends upon his ability to sire cows of great milking capacity; and this is very largely determined by the milking capacity of his dam, and grand-dams. This, of course, is not considered in show ring judging, but it should be. Under present rulings it is necessary to judge bulls by their general approach to the dairy type; due attention should also be given to masculinity.

LECTURE XXX.

JERSEY CATTLE.

Origin, History and Development of the Same in the Isle of Jersey.

It is probable that no breed of cattle has been more profoundly influenced by environment than the Jersey, and for this reason a brief glimpse at the Isle of Jersey is of interest.

The island lies in the English Channel, midway between Great Britain and France. It is under English control, but has its own law-making body. The total area of the island is 39,680 acres and a considerable portion, over one-third, is devoted to roads, or is so rocky as to be practically non-productive. The population in 1890 exceeded 60,000 people; and the number of cattle kept on the island is estimated to range between 20,000 and 25,000 head—one cow for every acre of grass land.

Lying in the midst of the sea and bathed by the waters of the Gulf Stream, Jersey has an altitude of about 400 feet on the northern coast, and slopes southward, so that the southern coast is level with the ocean. It has a remarkably uniform climate, for the sea breezes temper the heat of summer, and the inclination of the land to the south protects it from cold winds. Winter is absolutely unknown.

The mean temperature for the year ranges about 51 degrees F., and varies but little in winter or summer. Moisture is abundant, and pasture is good the year round. Intensive conditions prevail, land renting at from \$50.00 to \$100.00 per annum. Much of the land produces three crops per year.

Potatoes are a staple crop for export, and while grain is but little grown, roots are grown in great plenty for stock. The soil is wonderfully fertile, and kept so by the high per cent. of stock kept, and by the burning of seaweed for use as manure.

The holdings are very small, ranging from three to twenty acres for the most part. The cattle are tethered on the pastures, and are cared for almost wholly by the women, and this has probably contributed to their docility.

The careful investigations of old accounts and traditions in the Isle of Jersey, by the Hon. Edward Burnett of Massachusetts, a noted Jersey breeder, leads him to state that in all probability the Jersey originated by crossing the large red cow of Normaindy with the small black breed of Brittiany, several centuries ago. In the adjoining Isle of Guernsey it appears that the Normandy blood predominated, but in Jersey the Brittiany blood became the leading power. The intensive conditions necessary in such a densely populated country led to the development of the milking properties, with special regard to butter production; for the inhabitants of the island had a ready market for butter in England and on the continent. The selection of the animals best adapted to this end had, by 1789, raised the Jersey breed so far above other breeds that laws were passed forbidding the importation of any cattle into the island, save for slaughter, and fixing heavy penalties for a disobedience of the law. Later laws were even more stringent against importations.

A report on the cattle in 1812, written by Thomas Quayle, is of interest. He states that the cows were phenomenal milkers, yielding as high as twenty-four quarts per day, and as much as fourteen pounds of butter per week for a period of four months. He also says that the colors were red, red and white, cream colored, and cream colored with white. Some few were black, and others, like some of the early Angus, were black with brownish red stripes down the back.

Improvement was slow until 1833, when stimulated by activity of English breeders, the Royal Agricultural and Horticultural Society of the Island of Jersey was formed. Col. Le Couteur was made Secretary, and largely through his energetic work the Society adopted a liberal policy toward cattle breeders, offering excellent prizes for the best animals; and in 1834, a scale of points was drawn up by the Society.

It is related that two of the best cows on the island were chosen as models. One was considered perfect in fore-end, the other perfect in hind-end; and from these the first standard of excellence was drawn.

Improvement was rapid until 1840, and has been steady ever since, though modified to some extent by outside influences.

Cattle from the Channel Islands were introduced into England at an early date; but as the first importations were made from Alderney, this term was for many years applied to all the Channel Island cattle, though unjustly; for the Guernsey and Jerseys differ considerably from each other, and from the cattle on the Island of Alderney, which are very few in number.

Of the many English breeders, only one has done work of such nature as to deserve special attention. This was Phillip Dauncey of Horwood, England, who began breeding about 1830, and continued breeding for milk and butter with unusual skill and success until 1867, when owing to poor health, he was obliged to disperse his herd. He received high prices for the same, and was instrumental in bringing Jerseys prominently before the public in England; but he was, unfortunately, a faddist on color, preferring the solid fawn colors, or even darker; and the fashion thus set spread to America and worked considerable harm to the breed; for the Jersey Island breeders, finding solid colors in demand, reserved all such male calves, even though they were from inferior milking dams; while the calves of broken colors were sacrificed, no matter how good. This seriously damaged the breed, and tended to lower the standard of merit very decidedly; but the fashion has to a degree vanished.

Originating, in all probability, in a cross between two distinct breeds, kept under remarkably uniform conditions of climate and food, and reared under extremely intensive conditions, Jerseys have been developed by patient selection for one purpose—milk and butter producing capacity. The small size of the island, and the exclusion of all other cattle, has contributed to this end to a marked degree, for it has not only led to more or less in-breeding, but has effectually excluded blood that might be a disturbing element in the production of a definite type.

LECTURE XXXI.

JERSEY CATTLE.

Introduction Into America.

While there are indefinite accounts of the presence of Jersey cattle in America at a very early period, the first authentic accounts that are available relate to an importation made in 1850 by a club of wealthy men of Hartford, Conn. John A. Taintor was commissioned to make the purchases. He visited the island and, as he had full permission and funds to buy the best, he secured some most excellent animals. In 1851 Mr. Thomas Motley of Massachusetts made an importation, including a bull, whose dam was reputed to be the best butter cow on the island.

During following years Mr. Taintor, who selected the first importation, executed a number of importations for other gentlemen residing in the New England states. Another importation which deserves special notice was made by S. S. Stephens of Montreal, Canada, in 1868. The animals were of unusual merit, and the blood of this importation has been a very powerful factor in producing cows of high butter making capacity. Peter LeClair of Vermont made an importation in 1873, which has also been unusually far-reaching in effect on the breed.

It is but just to state that the importing of Jerseys was begun purely as a rich man's fad, and that during the earlier years the breeding was continued and controlled by men who devoted their attention to it purely as a hobby, aside from their regular business. The color craze struck America about 1870, and was very detrimental; and like other breeds,

the Jersey must needs have a boom. The inflation of prices and craze for fashionable pedigrees culminated in 1883 when 119 head averaged \$952.00 per head, and sixty, selected, made an average of \$2,564.00 per head. Depression followed, but had some good features, for in the dispersion of fancy herds at low prices many of the best animals went to breeders of moderate means, who were quick to recognize the high merit of the Jersey as a dairy cow, and who bred for utility rather than for fancy points.

The American Jersey Herd Register was started in 1868, and is recognized as the only standard. The energetic efforts of leading Jersey breeders has resulted in bringing the breed very prominently before the public. In the dairy tests at the Columbian and Pan-American Expositions, the Jersey herds have been triumphant, and the adaptability of the breed to intensive conditions is beyond dispute.

LECTURE XXXII.

JERSEY CATTLE.

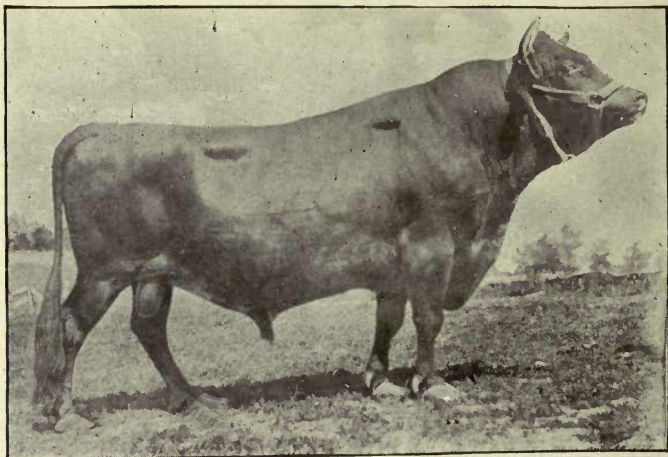
Points to Be Observed in Judging and Selecting the Same.

The Jersey is conceded to be a special purpose animal, and in judging them only milking indications count. Color was formerly insisted upon to an excessive degree, but no requirements as to color are found in the new scale of points, herein given. Digestive capacity, and udder, teats and milk-veins receive most attention. In actual judging due attention should be paid to general conformation, however, and while the scale of points lays minor emphasis on a straight, strong back, and strong constitution, these points should receive due consideration. There have undoubtedly been great performers that were somewhat deficient in heart girth; but they are not desirable breeding animals, notwithstanding.

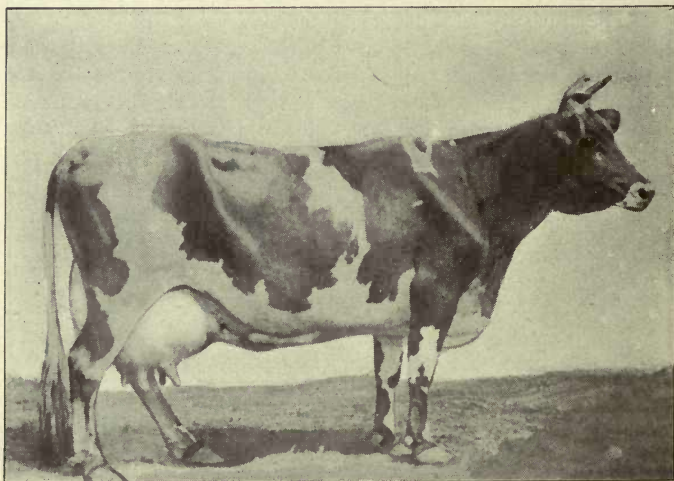
The scale of points adopted in July, 1903, is as follows:

Cows.

HEAD, 7:	Counts.
A. Medium size, lean; face dished; broad between eyes and narrow between horns.....	4
B. Eyes full and placid; horns small to medium, incurving; muzzle broad, with muscular lips; strong under jaw	3
NECK, 5:	
Thin, rather long, with clean throat; thin at withers.....	5



No. 28. Jersey Bull, Stoke Pogis of Prospect, 29121.



No. 29. Jersey Cow, Ida Marigold.

BODY, 33.

A. Lung capacity, as indicated by depth and breadth through body, just back of fore legs.....	5
B. Wedge shape, with deep, large paunch; legs proportionate to size and of fine quality.....	10
C. Back straight to hip-bones.....	2
D. Rump long to tail-setting and level from hip-bones to rump-bones	8
E. Hip-bones high and wide apart; loins broad, strong..	5
F. Thighs flat and well cut out.....	3

TAIL, 2:

Thin, long, with good switch, not coarse at setting-on....	2
--	---

UDDER, 28:

A. Large size and not fleshy.....	6
B. Broad, level or spherical, not deeply cut between teats	4
C. Fore udder full and well rounded, running well forward of front teats.....	10
D. Rear udder well rounded, and well out and up behind.	8

TEATS, 8:

Of good and uniform length and size, regularly and squarely placed.....	8
---	---

MILK VEINS, 4:

Large, tortuous and elastic.....	4
----------------------------------	---

SIZE, 3:

Mature cows, 800 to 1,000 pounds.....	3
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GENERAL APPEARANCE, 10:

A symmetrical balancing of all the parts, and a proportion of parts to each other, depending on size of animals, with the general appearance of a high-class animal, with capacity for food and productiveness at pail	10
--	----

 100
Bulls.

HEAD, 10:

A. Broad, medium; face dished; narrow between horns; horns medium in size and incurving.....	5
B. Muzzle broad, nostrils open, eyes full and bold; entire expression one of vigor, resolution and masculinity.	5

NECK, 10:

Medium length, with full crest at maturity; clean at throat 10

BODY, 54:

- A. Lung capacity as indicated by depth and breadth through body just back of fore shoulders; shoulders full and strong..... 15
- B. Barrel long, of good depth and breadth, with strong, well-sprung ribs 15
- C. Back straight to hip-bones..... 2
- D. Rump of good length and proportion to size of body, and level from hip-bones to rump-bone..... 7
- E. Loins broad and strong; hips rounded, and of medium width compared with female..... 7
- F. Thighs rather flat, well cut up behind, high arched flank 3
- G. Legs proportionate to size and of fine quality, well apart, and not to weave or cross in walking..... 5

RUDIMENTARY TEATS, 2:

Well placed 2

TAIL, 4:

Thin, long, with good switch, not coarse at setting-on.... 4

SIZE, 5:

Mature bulls, 1,200 to 1,500 pounds..... 5

GENERAL APPEARANCE, 15:

Thoroughly masculine in character, with a harmonious blending of the parts to each other; thoroughly robust, and such an animal as in a herd of wild cattle would likely become master of the herd by the law of natural selection and survival of the fittest.. 15

The Jersey breeders have followed the move of the Holstein-Friesian breeders in establishing a record or register based on performance; and the requirements are much the same in general. Cows must exceed a certain minimum production of milk and butter to be eligible to this Register of Merit; and bulls must score 80 points out of a possible 100 on individuality, and must have three daughters from as many different dams in the Register of Merit.

LECTURE XXXIII.

AYRSHIRE CATTLE.

Origin, History, and Development of the Breed in Great Britain.

This breed originated in the County of Ayr, which lies next the sea in the southwestern part of Scotland. The climate is very damp and raw, but, while this is the case, the close proximity of the ocean tends to maintain a fairly equable temperature, and while gusty storms occasionally sweep over the county, it never becomes cold as in our central states. This is further attested by the fact that the cattle run out practically all winter, and that turnips are left standing in the field all winter, or pulled and left in piles without shelter. The abundance of moisture is favorable to luxuriant pasturage, but much of the land is hilly, stony, and covered with heather—a very coarse tree-like shrub, which grows as high as one's waist unless kept closely pastured.

Such is the general character of the country where this breed originated. Aiton, writing in 1806, declared that fifty or sixty years preceding—about 1750—the cattle found in Ayrshire were puny, unshapely, and very inferior in size. He further states that in addition to being diminutive in size and ill-shaped, they were ill-fed, and gave but a scanty return in milk; that they were mostly of a black color, with large stripes of white along the chine, about their flanks, and on their faces. They were lank, short, thin, and high from the ground; their hides were thick, and adhered closely to the bones; and the best of them yielded not more than three or four Scot's pints of milk per day.

The extremely poor character of the cattle at this time was undoubtedly due to some extent to the extremely unfavorable environments; for at this early day, the land was under very poor cropping and the pastures were constantly overstocked.

The first improvement worthy of notice began about 1760, when some noblemen and gentlemen in the eastern and southern counties of Scotland brought some improved cattle in from England; and from the color and general character it appears that there were of the Holderness or Teeswater stock.

John Dunlap of Cunningham was probably the first to introduce these improved cattle into Ayrshire, but it is believed that his stock was drawn from Holland. They proved eminently satisfactory as milch cows, but required better care than the native stock; but they were so far ahead of the native cattle that bulls were eagerly sought for to improve the native stock.

The Earl of Marchmont bought some cattle of the Teeswater breed from the Bishop of Durham in 1750; and some of this stock was afterwards carried from the Earl's estates in Berwickshire to Ayrshire and left a numerous progeny of cross-bred animals.

Besides the foregoing importations of Dutch and Teeswater stock, there are indefinite accounts of the introduction of some Alderney stock—whether Jersey, Guernsey, or Alderney, we know not—and indefinite reports of some Kerry blood.

The union of these various blood elements with the native stock vastly improved the average stock of cattle; there are well defined accounts of a later introduction of West Highland blood, which is said to have aided materially in giving hardier constitutions, and which also resulted in producing animals with wider, shorter heads, finer bone, more hair, and with more of a tendency to fatten. The precise amount of Highland blood so introduced is unknown.

The selection of the choicest animals for breeding purposes, in connection with the liberal admixture of foreign blood had resulted in changing the character of the stock so materially that by 1810 the Ayrshire stock was recognized as of superior merit as dairy animals; and improvement since that time has been accomplished wholly by selection of the

best. No special improvers have come forth, but all breeders have done more or less. In recent years, too much attention has been paid to fancy points, such as the development of horns of considerable length curved upward from the head; but more reasonable views are beginning to prevail. A requirement of the Scottish breeders in the recent past is that the udder shall be held close to and on a level with the line of the body, and that the teats shall be short. It is difficult to account for this last point, and it is certain that the short teats of the Ayrshire cow has damaged her popularity more than all other factors. One reason given to account for the preference for short teats in the Scottish show yards ascribes it to the fact that most of the milking is done by girls who prefer to "strip" with the thumb and two fingers rather than to grasp the teat with the entire hand. Another and more plausible one ascribes the preference of the Scottish breeders for a close carried udder and short teats to the pasture on which the cows run. The heather is high and coarse, and a deep pendant udder with long teats would be kept so scratched and injured by the high, coarse herbage that it would be practically impossible to milk the cows.

The milk of the Ayrshire cow is of medium richness in fat. It is high in solids, and well adapted to cheesemaking. A peculiarity of the milk is the fact that the fat globules are very small—much more so than in any other milk. For this reason, the cream rises very slowly and imperfectly, but this very characteristic makes the milk the more valuable to men who sell milk for direct consumption, as it enables them to furnish milk of uniform quality and of desirable appearance.

Originating in the introduction of Shorthorn, Holland, and Alderney blood on native stock of inferior merit, and later invigorated by a cross of West Highland stock, the Ayrshire cattle made remarkably rapid improvement between 1750 and 1810; and since that time the improvement has been gradual but steady, resulting in the production of the Ayrshire of today—a vigorous, hardy animal; well adapted to utilize large amounts of coarse fodder, and returning a large flow of milk of medium quality, especially well adapted to city trade.

LECTURES XXXIV AND XXXV.

AYRSHIRE CATTLE.

Introduction of the Same Into America.

The earliest known importations were made into Canada in the early part of the nineteenth century, when cows were brought over in ships bringing emigrants from Scotland and England. These cows were chiefly intended to furnish milk to the passengers while on the voyage. They were sold on this side, however, and the demand for them increased; at first the shipowners were requested to bring over more cows, and later some energetic citizens took the chances of importing them for sale. The breed spread much more quickly in Canada than in the United States owing to the fact that a very large proportion of the Canadian settlers were Scotch. In 1837 the first importations to the United States were made to the New England states. These continued for about twenty-five years, but the cattle, while hardy and good milkers, proved unsatisfactory because of their extremely short teats. The result was that importations ceased, demand fell off, and American breeders found it necessary to breed for longer teats if they were to achieve success. The effort was made and some success has followed, so that in recent years the breed has increased in followers. Improvement has also been made in Canada along similar lines, but little has as yet been accomplished in Scotland in improving the teats.

As a hardy breed, well adapted to consume large amounts of coarse fodder and to rustle energetically when at pasture, the Ayrshire is deservedly popular; and the excellent com-

position of the milk, mentioned in the preceding lesson, makes these cattle of special merit in furnishing milk for city trade. The breed is not adapted to the production of beef, but the steers can be fed for veal, or as mature animals, and make as good beef as any dairy breed can.

Points to Be Observed in Judging and Selecting Ayrshire Cattle.

The following scale of points was adopted by the American Association of Ayrshire Breeders in January, 1901:

Cow.

The following scale of points for the Ayrshire cow was adopted, being similar to the scale adopted in Scotland in 1884, and changed in a few points to render them applicable to this country:

1. **Head.**—Medium in length; forehead, wide; nose, fine between the muzzle and eyes; muzzle, wide; eyes, full and lively, causing a hollow in face; wide between horns inclining upward..... 10
2. **Neck.**—Moderately long, and straight from the head to the top of the shoulder, free from loose skin on the under side, fine at its junction with the head, and enlarging symmetrically towards the shoulders. 5
3. **Forequarters.**—Shoulder, sloping; withers, fine; chest, sufficiently broad and deep to insure constitution; brisket and whole forequarters light, the cow gradually increasing in depth and width backwards.... 5
4. **Back.**—Short and straight; spine, well defined especially at the shoulders; ribs, well sprung, giving large barrel capacity; the body deep at the flanks.. 10
5. **Hindquarters.**—Long, broad and straight, except a pelvic arch; hook-bones wide apart, and not overlaid with fat; tail long, slender and set on a level with the back 7
6. **Udder.**—Capacious and not fleshy, hind part broad and firmly attached to the body, the sole nearly level and extending well forward; milk veins about udder and abdomen well developed; the teats from $2\frac{1}{2}$

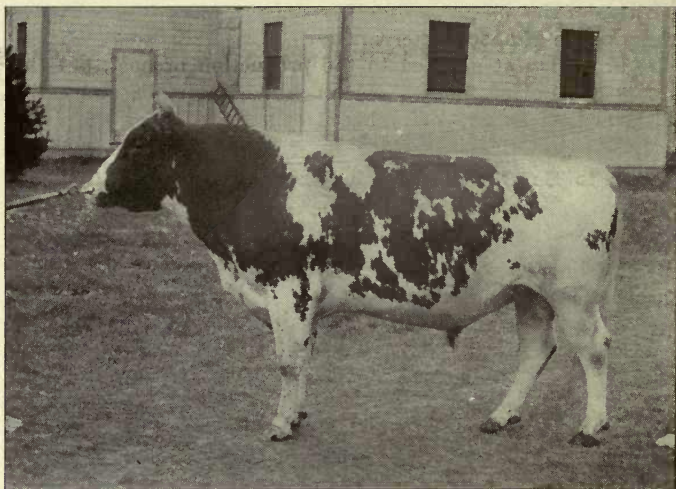


Fig. 30. Ayrshire Bull, Imp. Black Prince.

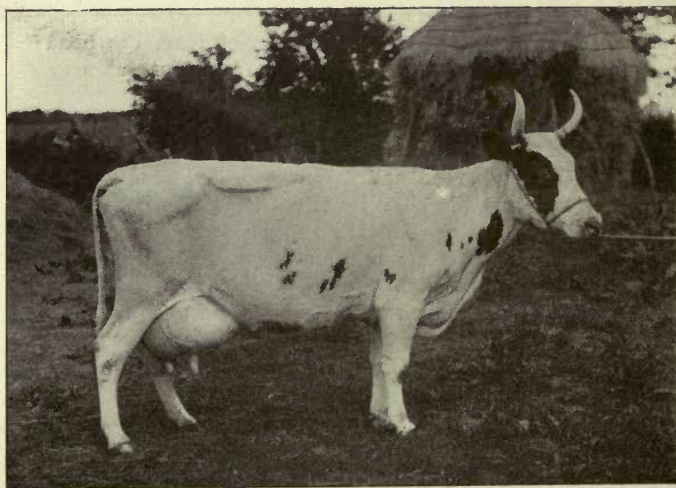


Fig. 31. Ayrshire Cow, Lilly of the Vale.

to 3 inches in length, equal in thickness—the thickness being in proportion to the length—hanging perpendicularly, their distance apart at the sides should be equal to one-third of the length of the vessel, and across to one-half the breadth with no divisions between quarters of the udder..... 30

7. **Legs.**—Short in proportion to size; hind legs straight when viewed from behind; thighs thin, giving plenty of room for udder..... 4
8. **Skin.**—Yellow, soft and elastic, and covered with soft, close, woolly hair..... 5
9. **Color.**—Red of any shade, brown or white, or a mixture of these—each color being distinctly defined.. 3
10. **Average Live Weight.**—In full milk about 1,000 pounds 8
11. **General Appearance.**—Including style and movement 10
12. **Escutcheon.**—Large and fine development..... 3

Perfection100

Bull.

The points desirable in the female are generally so in the male, but must, of course, be attended with that masculine character which is inseparable from a strong and vigorous constitution. Even a certain degree of coarseness is admissible; but then it must be so exclusively of masculine description as never to be discovered in a female of his get.

1. **Head.**—Of the bull may be shorter than that of the cow, but the frontal-bone should be broad, the muzzle good size, throat nearly free from hanging folds, eyes full. The horns should have a upward turn, with sufficient size at the base to indicate strength of constitution 10
2. **Neck.**—Of medium length, somewhat arched, and large in the muscles which indicate power and strength.. 10
3. **Forequarters.**—Shoulders close to the body without any hollow space behind; chest broad, brisket deep and well developed, but not too large..... 7
4. **Back.**—Short and straight; spine sufficiently defined,

	but not in the same degree as in the cow; ribs well sprung, and body deep in the flanks.....	10
5.	Hindquarters. —Long, broad and straight; hip bones wide apart; pelvis long, broad and straight; tail set on a level with the back; thighs deep and broad	10
6.	Scrotum. —Large, with well developed teats in front..	7
7.	Legs. —Short in proportion to size, joints firm. Hind legs well apart, and not to cross in walking.....	5
8.	Skin. —Yellow, soft, elastic, and of medium thickness.	10
9.	Color. —Red of any shade, brown or white, or a mixture of these—each color being distinctly defined..	3
10.	Average Live Weight. —At maturity about 1,500 pounds	10
11.	General Appearance. —Including style and movement.	15
12.	Escutcheon. —Large and fine development.....	3
	Perfection	100

In judging animals by the foregoing scale of points, special attention should be paid to strong constitution, digestive capacity, and a long udder, which should be held close to the body, but carried well forward on and blending smoothly into the belly. The udder should be level, soled, without division into quarters, and the teats should be well placed, and, above all, of a size easily grasped by the hand. This point deserves special attention, for its absence has undoubtedly done the Ayrshire interests more damage than all other factors combined.

LECTURE XXXVI.

HOLSTEIN-FRIESIAN CATTLE.

Origin, History, and Development of the Holstein-Friesian Breed.

The origin is unknown. All that is definitely known is that for long years anterior to definite historical records a race of cattle of superior size and merit existed in the Duchy of Holstein; and from these most of the cattle of northern Germany and the Netherlands has been derived. The great size of the cattle, and their great antiquity, renders it probable that they were domesticated forms of the *Bos primigenius*.

Just how early the breed assumed the modern characteristics is not known, but the cattle of Holland were famed for dairy products as early as 850 A. D., and as they were drawn from Holstein it appears that the breed had assumed great milking capacity at an early period.

So far as is known, no foreign blood was ever introduced in the formation of the breed; but on the contrary, the Holstein blood seems to have entered into the make-up of the Shorthorn, Ayrshire, and other improved breeds. The evolution of the breed has been in large part due to environment, and has been very gradual.

Holland, where the breed has attained its greatest development, is a low, flat country, in large part reclaimed from the sea by dikes; the vegetation is very luxuriant, and contains a high content of water—is succulent. This has, by a process of natural selection, developed a race of cattle adapted to consuming large amounts of coarse fodder, and the succulence of the vegetation has resulted in a very full

milk flow, but the milk is low in fat content. The climate is variable, and subject to considerable extremes; but pasturage is good for practically six months of every year. The cattle are blanketed while at pasture, to protect them from flies; and heavier blankets are used to protect them from spring and fall storms. Dairying with special regard to cheese-making, is the chief business, and the cattle barns are usually built as a part of the house; the doors opening directly from the living rooms to the cow stalls. Most of the dairy work is done by women; the barns are kept scrupulously clean, and the cows themselves are treated with more consideration than the children often are. The feed is in large part of coarse fodder, very little concentrated feed being given.

While the Dutch have constantly bred to improve the milking qualities of their cows, it cannot be said that they have displayed any particular ability in so doing, and breeding records are, with them, a thing of recent date. For the most part the present status of the breed in Holland is due to environment, and long continued breeding without introduction of alien blood. The breed is probably as old as any known, ranking with the Brown Swiss and Galloway in this respect.

LECTURES XXXVII. AND XXXVIII.

HOLSTEIN-FRIESIAN CATTLE.

Introduction Into America.

While we have no positive knowledge of early importations it is known that the early Dutch settlers of New York possessed cattle, and it is but reasonable to suppose that they were brought from Holland.

These cattle spread over various parts of New York, were known for many years as Dutch cattle, and were highly esteemed for their milking qualities.

The earliest importations of which we have definite accounts consisted of two bulls and six cows, imported in 1795 by the Holland Land Company to New York. In 1810 Mr. Wm. Jarvis of Vermont imported a bull and two cows. In 1825 other importations were made into New York and Delaware. All of these early importations were soon lost in the blood of the common stock, and no definite advancement was made by the breed in America until the 50s, when the Hon. Winthrop W. Chenery of Massachusetts took an interest in the breed. His first two importations—made in 1852 and 1857—and all their descendants, save one young bull, were destroyed by disease in 1858 and 1859. He was not a whit discouraged, but made another importation in 1861. Another importation was made in 1867 by the Hon. Gerrit S. Miller to New York State. After the establishment of the Herd Book (1872), progress was rapid, and during the last thirty years importations have been extensively made and careful selection and breeding has been followed. Breeders have held closely to dairy qualities, but at the same time have tried to secure large animals, that can be profit-

ably disposed of for beef when it is deemed advisable. The male calves are usually fattened and sold as veal, and prove very satisfactory on this score, as they are very rapid growers and fatten well while young.

The Holstein-Friesian Association has established a very complete scale of points, for use in scoring animals for admission to advanced registry.

Scale of Points of the Holstein-Friesian Association of America, with a Uniform System of Discredits.

(The items of description following each head of the scale should be passed upon separately, and the amount of discredit marked down on the margin. The uniform discredits to be given are noted under each full description. V. s. means very slight deficiency; s., slight; m., marked; v. m., very marked; e., extreme. The difference between the sum of such discredits and 100 will be the standard of the animal by this scale.)

For Bulls.

Head, 2.—Showing full vigor; elegant in contour. Discredit, v. s. $\frac{1}{8}$; s. $\frac{1}{4}$; m. $\frac{1}{2}$; v. m. $\frac{3}{4}$; e. 1.

Forehead, 2.—Broad between the eyes; dishing. Discredit, v. s. $\frac{1}{8}$; s. $\frac{1}{4}$; m. $\frac{1}{2}$; v. m. $\frac{3}{4}$; e. 1.

Face, 2.—Of medium length; clean and trim especially under eyes; the bridge of the nose straight; the muzzle broad. Discredit, s. $\frac{1}{8}$; m. $\frac{1}{4}$; e. $\frac{1}{2}$.

Ears, 1.—Of medium size; of fine texture; the hair plentiful and soft; the secretions oily and abundant. Discredit, m. $\frac{1}{8}$; e. $\frac{1}{4}$.

Eyes, 2.—Large; full; mild; bright. Discredit, s. $\frac{1}{8}$; m. $\frac{1}{4}$; e. $\frac{1}{2}$.

Horns, 2.—Short; of medium size at base; gradually diminishing toward tips; oval; inclining forward; moderately curved inward; of fine texture; in appearance waxy. Discredit, m. $\frac{1}{8}$; e. $\frac{1}{4}$.

Neck, 5.—Finely crested (if animal is mature), fine and clean at juncture with the head; nearly free from dewlap; strongly and smoothly joined to shoulders. Discredit, v. s. $\frac{1}{8}$; s. $\frac{1}{4}$; m. $\frac{1}{2}$; v. m. $\frac{3}{4}$; e. 1.

Shoulders, 4.—Of medium height; of medium thickness and smoothly rounded at top; broad and full at sides; smooth

- over front. Discredit, v. s. $\frac{1}{8}$; s. $\frac{1}{4}$; m. $\frac{1}{2}$; v. m. $\frac{3}{4}$; e. 1.
- Chest, 8.**—Deep and low; well filled and smooth in the brisket; broad between the forearms; full in the foreflanks (or through at the heart). Discredit, v. s. $\frac{1}{4}$; s. $\frac{1}{2}$; m. 1; v. m. $1\frac{1}{2}$; e. 2.
- Crops, 4.**—Comparatively full; nearly level with the shoulders. Discredit, v. s. $\frac{1}{4}$; s. $\frac{1}{2}$; m. 1; v. m. $1\frac{1}{2}$; e. 2.
- Chine, 3.**—Straight; broadly developed; open. Discredit, v. s. $\frac{1}{8}$; s. $\frac{1}{4}$; m. $\frac{1}{2}$; v. m. $\frac{3}{4}$; e. 1.
- Barrel, 6.**—Well rounded; with large abdomen; strongly and trimly held up. Discredit, v. s. $\frac{1}{4}$; s. $\frac{1}{2}$; m. 1; v. m. $1\frac{1}{2}$; e. 2.
- Loin and Hips, 5.**—Broad; level or nearly level between hook-bones; level and strong laterally; spreading from the chine broadly and nearly level; the hook bones fairly prominent. Discredit, v. s. $\frac{1}{8}$; s. $\frac{1}{4}$; m. $\frac{1}{2}$; v. m. $\frac{3}{4}$; e. 1.
- Rump, 5.**—Long, broad, high, nearly level laterally; comparatively full above the thurl. Discredit, v. s. $\frac{1}{8}$; s. $\frac{1}{4}$; m. $\frac{1}{2}$; v. m. $\frac{3}{4}$; e. 1.
- Quarters, 5.**—Deep; broad, straight behind; wide and full at sides; open and well arched in the twist. Discredit, v. s. $\frac{1}{8}$; s. $\frac{1}{4}$; m. $\frac{1}{2}$; v. m. $\frac{3}{4}$; e. 1.
- Thurl, 4.**—High; broad. Discredit, v. s. $\frac{1}{4}$; s. $\frac{1}{2}$; m. 1; v. m. $1\frac{1}{2}$; e. 2.
- Flanks, 2.**—Deep, full. Discredit, v. s. $\frac{1}{8}$; s. $\frac{1}{4}$; m. $\frac{1}{2}$; v. m. $\frac{3}{4}$; e. 1.
- Legs, 6.**—Comparative short; clean and nearly straight; wide apart; firmly and squarely set under the body; arms wide, strong and tapering; feet of medium size, round, solid and deep. Discredit, v. s. $\frac{1}{8}$; s. $\frac{1}{4}$; m. $\frac{1}{2}$; v. m. $\frac{3}{4}$; e. 1.
- Tail, 2.**—Large at base, the setting well back; tapering finely to switch; the end of the bone reaching to hocks or below; the switch full. Discredit, s. $\frac{1}{8}$; m. $\frac{1}{4}$; e. $\frac{1}{2}$.
- Hair and Handling, 10.**—Hair healthful in appearance; fine, soft and furry; skin of medium thickness and loose; mellow under the hand; the secretions oily, abundant, and of a rich brown or yellow color. Discredit, v. s. $\frac{1}{4}$; s. $\frac{1}{2}$; m. 1; v. m. $1\frac{1}{2}$; e. 2.
- Mammary Veins, 10.**—Large; full; entering large or numerous orifices; double extension; with special developments; such as forks, branches, connections, etc. Discredit, v. s. $\frac{1}{4}$; s. $\frac{1}{2}$; m. 1; v. m. $1\frac{1}{2}$; e. 2.

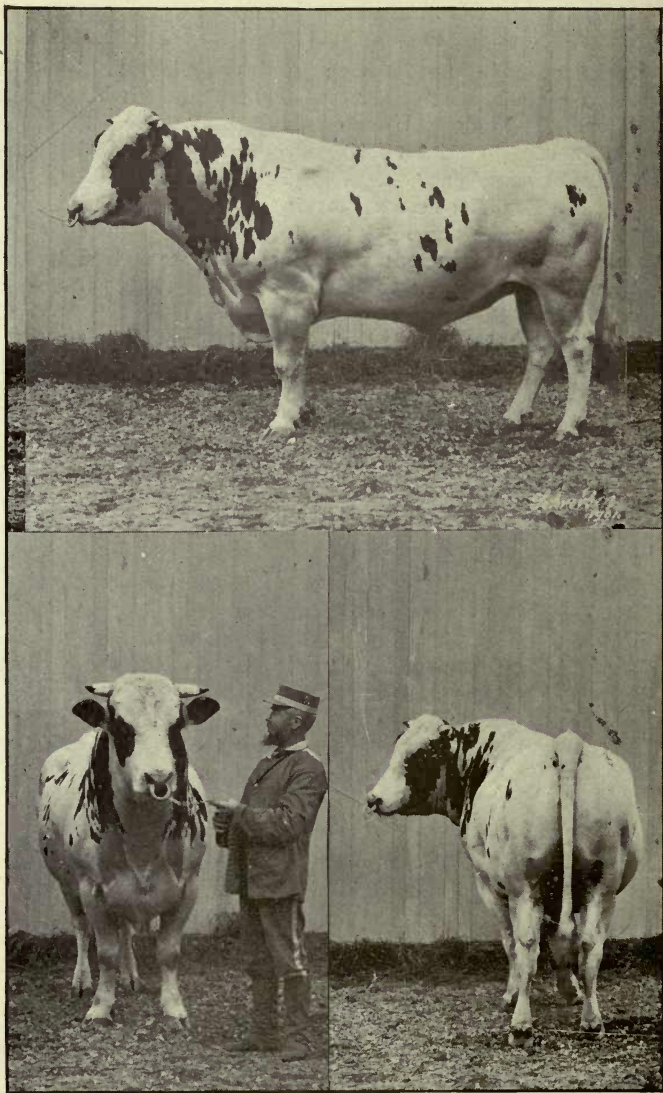


Fig. 32. Holstein Bull, Count Paul De Kol.

Rudimentary Teats, 2.—Large, well placed. Discredit, v. s. $\frac{1}{8}$; s. $\frac{1}{4}$; m. $\frac{1}{2}$; v. m. $\frac{3}{4}$; e. 1.

Escutcheon, 8.—Largest; finest. Discredit, v. s. $\frac{1}{2}$; s. 1; m. 2; v. m. 3; e. 4.

Perfection, 100 points.

General Vigor.—For deficiency inspectors shall discredit from the total received not to exceed eight points. Discredit, v. s. 1; s. 2; m. 3; v. m. 5; e. 8.

General Symmetry and Fineness.—For deficiency inspectors shall discredit from the total received not to exceed eight points. Discredit, v. s. 1; s. 2; m. 3; v. m. 5; e. 8.

General Style and Bearing.—For deficiency inspectors shall discredit from the total received not to exceed eight points. Discredit, v. s. 1; s. 2; m. 3; v. m. 5; e. 8.

Credits for Offspring.—A bull shall be credited one point in excess of what he is other wise entitled to for each and every animal of which he is sire actually entered in the Advanced Register not to exceed ten in number.

In scaling for the Advanced Register, defects caused solely by age, or by accident, or by disease not hereditary, shall not be considered. But in scaling for the show ring, such defects shall be considered and duly credited.

A bull that in the judgment of the Examiner will not reach at full age, and in good flesh, 1,800 pounds, live weight, shall be disqualified for entry in the Advanced Register.

No bull shall be received to the Advanced Register that, with all credits due him, will not scale in the judgment of the Examiner at least 80 points.

For Cows.

Head, 2.—Decidedly feminine in appearance; fine in contour. Discredit, v. s. $\frac{1}{8}$; s. $\frac{1}{4}$; m. $\frac{1}{2}$; v. m. $\frac{3}{4}$; e. 1.

Forehead, 2.—Broad between the eyes; dishing. Discredit, v. s. $\frac{1}{8}$; s. $\frac{1}{4}$; m. $\frac{1}{2}$; v. m. $\frac{3}{4}$; e. 1.

Face, 2.—Of medium length; clean and trim especially under the eyes, showing facial veins; the bridge of the nose straight; the muzzle broad. Discredit, s. $\frac{1}{8}$; m. $\frac{1}{4}$; e. $\frac{1}{2}$.

Ears, 1.—Of medium size; of fine texture; the hair plentiful and soft; the secretions oily and abundant. Discredit, m. $\frac{1}{8}$; e. $\frac{1}{4}$.

Eyes, 2.—Large; full; mild; bright. Discredit, s. $\frac{1}{8}$; m. $\frac{1}{4}$; e. $\frac{1}{2}$.

Horns, 2.—Small; tapering finely toward the tips; set moderately narrow at base; oval; inclining forward; well bent inward; of fine texture; in appearance waxy. Discredit, m. $\frac{1}{8}$; e. $\frac{1}{4}$.



Fig. 33. Holstein Cow, Flossetta Teake.

Neck, 4.—Long; fine and clean at juncture with the head; free from dewlap; evenly and smoothly joined to shoulders. Discredit, v. s. $\frac{1}{8}$; s. $\frac{1}{4}$; m. $\frac{1}{2}$; v. m. $\frac{3}{4}$; e. 1.

Shoulders, 3.—Slightly lower than hips; fine and even over tops; moderately broad and full at sides. Discredit, v. s. $\frac{1}{8}$; s. $\frac{1}{4}$; m. $\frac{1}{2}$; v. m. $\frac{3}{4}$; e. 1.

Chest, 6.—Of moderate depth and lowness; smooth and moderately full in the brisket; full in the foreflanks (or through at the heart). Discredit, v. s. $\frac{1}{4}$; s. $\frac{1}{2}$; m. 1; v. m. $1\frac{1}{2}$; e. 2.

Crops, 2.—Moderately full. Discredit, v. s. $\frac{1}{4}$; s. $\frac{1}{2}$; m. $\frac{3}{4}$; v. m. $1\frac{1}{2}$; e. 2.

Chine, 3.—Straight; broadly developed; open. Discredit, v. s. $\frac{1}{8}$; s. $\frac{1}{4}$; m. $\frac{1}{2}$; v. m. $\frac{3}{4}$; e. 1.

Barrel, 4.—Of wedge shape, well rounded; with a large abdomen; trimly held up (in judging the last item age must be considered). Discredit, v. s. $\frac{1}{8}$; s. $\frac{1}{4}$; m. $\frac{1}{2}$; v. m. $\frac{3}{4}$; e. 1.

Loin and Hips, 5.—Broad; level or nearly level between hook-bones; level and strong laterally; spreading from chine broadly and nearly level; hook-bones fairly prominent. Discredit, v. s. $\frac{1}{8}$; s. $\frac{1}{4}$; m. $\frac{1}{2}$; v. m. $\frac{3}{4}$; e. 1.

Rump, 5.—Long; high; broad, with roomy pelvis; nearly level laterally; comparatively full above the thurl. Discredit, v. s. $\frac{1}{8}$; s. $\frac{1}{4}$; m. $\frac{1}{2}$; v. m. $\frac{3}{4}$; e. 1.

Thurl, 4.—High; broad. Discredit, v. s. $\frac{1}{4}$; s. $\frac{1}{2}$; m. 1; v. m. $1\frac{1}{2}$; e. 2.

Quarters, 4.—Deep; straight behind; roomy in the twist; wide and moderately full at the sides. Discredit, v. s. $\frac{1}{8}$; s. $\frac{1}{4}$; m. $\frac{1}{2}$; v. m. $\frac{3}{4}$; e. 1.

Flanks, 2.—Deep; comparative full. Discredit, v. s. $\frac{1}{8}$; s. $\frac{1}{4}$; m. $\frac{1}{2}$; v. m. $\frac{3}{4}$; e. 1.

Legs, 5.—Comparatively short; clean and nearly straight; wide apart; firmly and squarely set under the body; feet of medium size, round, solid and deep. Discredit, v. s. $\frac{1}{8}$; s. $\frac{1}{4}$; m. $\frac{1}{2}$; v. m. $\frac{3}{4}$; e. 1.

Tail, 2.—Large at base, setting well back; tapering finely to switch; the end of the bone reaching to hocks or below; the switch full. Discredit, s. $\frac{1}{8}$; m. $\frac{1}{4}$; e. $\frac{1}{2}$.

Hair and Handling, 10.—Hair healthful in appearance; fine, soft and furry; the skin of medium thickness and loose; mellow under the hand; the secretions oily, abundant, and of a rich brown or yellow color. Discredit, v. s. $\frac{1}{4}$; s. $\frac{1}{2}$; m. 1; v. m. $1\frac{1}{2}$; e. 2.

Mammary Veins, 10.—Very large, very crooked (age must be taken into consideration in judging of size and crookedness); entering very large or numerous orifices; double extension; with special developments, such as branches, connections, etc. Discredit, v. s. $\frac{1}{4}$; s. $\frac{1}{2}$; m. 1; v. m. $1\frac{1}{2}$; e. 2.

Udder and Teats, 12.—Very capacious; very flexible; quarters even; nearly filling the space in the rear below the twist, and extending well forward in front; broad and well held up; teats well formed, wide apart, plump, and of convenient size. Discredit, v. s. $\frac{1}{4}$; s. $\frac{1}{2}$; m. 1; v. m. $1\frac{1}{2}$; e. 2.

Escutcheon, 8.—Largest and finest. Discredit, v. s. $\frac{1}{2}$; s. 1; m. 2; v. m. 3; e. 4.

Perfection, 100 points.

General Vigor.—For deficiency inspectors shall discredit from the total received not to exceed eight points. Discredit, v. s. 1; s. 2; m. 3; v. m. 5; e. 8.

General Symmetry and Fineness.—For deficiency inspectors shall discredit from the total received not to exceed eight points. Discredit, v. s. 1; s. 2; m. 3; v. m. 5; e. 8.

General Style and Bearing.—For deficiency inspectors shall discredit from the total received not to exceed eight points. Discredit, v. s. 1; s. 2; m. 3; v. m. 5; e. 8.

Credits for Excess of Requirement in Production.—A cow shall be credited one point in excess of what she is otherwise entitled to for each and every eight per cent. that her milk or butter record exceeds the minimum requirement.

In scaling for the Advanced Register, defects caused solely by age, or by accident, or by disease not hereditary, shall not be considered. But in scaling for the show ring such defects shall be considered and duly discredited.

A cow that in the judgment of the Examiner will not reach at full age, in milking condition and ordinary flesh, 1,000 pounds, live weight, shall be disqualified for entry in the Advanced Register.

No cow shall be received to the Advanced Register that, with all credits due her, will not scale in the judgment of the Examiner at least 75 points.

The Advanced Registry is a special register, based on performance, and is a most potent factor in raising the standard of Holstein-Friesian cattle. Cows to be eligible must have exceeded a minimum limit in the production of milk and butter, and their individual conformation must be up to a certain standard, to be determined by official inspectors. Bulls must also score a certain number of points and must also have dams, sisters, or daughters in the Advanced Registry. The establishment of such a record, based on performance, is a bright mark to the credit of Holstein-Friesian breeders, and other breeders are following in their footsteps.

LECTURE XXXIX.

GUERNSEY CATTLE.

Origin, History, and Development of the Breed in the Isle of Guernsey.

Like the Jersey breed, the Guernsey has been profoundly modified by environment.

The Isle of Guernsey lies a short distance northwest of Jersey. It contains about 15,000 acres all told, but much of this is rocky. Unlike Jersey, Guernsey is high on the southern coast, and slopes to the north. The soil is less rich, and there are fewer wooded valleys; and the island is more exposed to storms. Despite this fact, the presence of the Gulf Stream has a most ameliorating influence, and while the variations between summer and winter are greater than in Jersey, the cold is rarely severe or prolonged, and freezing is rather unusual. The mean annual temperature of the island is but three degrees lower than that of Jersey.

The agricultural products are much the same as in Jersey. The cattle are maintained chiefly on pasture, where they are tethered in the summer, and in the winter they receive coarse fodder and roots.

The exact origin of the breed is, as with the Jersey, in some doubt; but so far as is known the Guernsey arose from the same stock—Normandy and Brittany—as the Jersey, but it is held that there was a greater proportion of Normandy blood in the Guernsey stock. The absolute necessity for intensive conditions, and the ready market for dairy products, early brought dairying to the front as the chief industry; and a more or less careful method of selection resulted in the development of a type of animals of great

milking capacity. The more exposed conditions of the island has resulted in the production of a hardier breed than in Jersey; and it is stated with considerable degree of truth that the Guernsey breeders have held more strictly to utility, and paid less heed to non-essential fancy points, than the Jersey breeders. In their development as a breed all indications of milking qualities have been zealously searched for, and respected. The Guernsey breeders lay great stress on the skin as indicative of rich milk; they desire it to be a deep yellow on all portions of the body, showing most particularly in the ears, at end of tail, and about the teats, and seek for an oily secretion in connection with such a skin.

The breed has been kept pure since the early part of the last century, and in consequence of the small area of the island, and the small number of cattle—not exceeding from 8,000 to 12,000—more or less inbreeding has occurred, though to what extent is unknown, for breeding records have only been kept in the last half century. The more or less inbreeding that has undoubtedly occurred has aided in concentrating the blood, and has given to the Guernsey a fixity of type far greater than would ordinarily have been the case.

Originating in Normandy and Brittany stock, crossed centuries ago, and bred under intensive conditions, in a confined area, for long years, the Guernsey has developed into a milking cow of superior merit, being deep-bodied, with a large barrel, a roomy frame, and a large udder, and they have, through years of breeding, acquired milking properties of the first order.

LECTURES XL. AND XLI.

GUERNSEY CATTLE.

Introduction Into America.

Some importations of Channel Island cattle were made in the early part of the last century by Mr. R. L. Colt of Paterson, N. J. A number of these were Guernseys, and as Jerseys came in the same importation, the progeny became more or less cross-bred, which caused considerably difficulty for those who afterwards desired to register as pure-bred either Jersey or Guernseys tracing to this importation. In 1840 three Guernsey cows were imported into Pennsylvania. They proved so satisfactory that later importations were made, and the stock was kept pure.

Other importations took place, but for the first twenty-five or thirty years, both Jerseys and Guernseys were confused under name Alderney.

The Jersey Herd Register was started in 1868, and this tended to separate out the Guernseys, so that in 1878 they established a separate herd register of their own. During the last twenty years, importations have been considerable, and they have taken a high place in various dairy tests, notably at the Pan-American, where a Guernsey cow out-ranked all others.

Points to Be Considered in the Judging and Selecting of the Guernsey.

All measurements, description and scaling shall be in accord with the following scale of points for Guernsey cattle, adopted by the American Guernsey Cattle Club, December 13th, 1899:

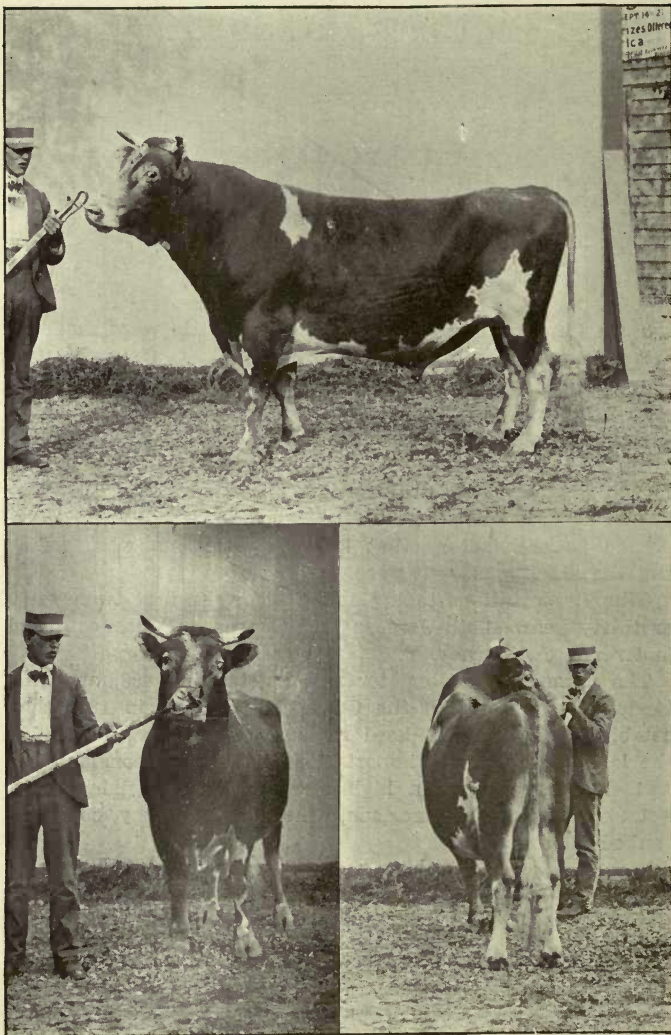


Fig. 34. Guernsey Bull, Prince Rosendale, 4291.

Cows.**DAIRY TEMPERAMENT, CONSTITUTION, 38:**

Clean cut, lean face; strong sinewy jaw; wide muzzle with wide open nostrils; full, bright eye with quiet and gentle expression; forehead long and broad..... 5



Fig. 35. Guernsey Cow, Lady Agnes, 13763.

Long, thin neck with strong juncture to head; clean throat. Backbone rising well between shoulder blades; large rugged spinal processes, indicating good development of the spinal cord..... 5

Pelvis arching and wide; rump long; wire, strong structure of spine at setting-on of tail. Long thin tail with good switch. Thin incurving thighs..... 5

Ribs amply and fully sprung and wide apart, giving an open, relaxed conformation; thin arching flank..... 5

Abdomen large and deep, with strong muscular and navel development, indicative of capacity and vitality.....	15
Hide firm yet loose, with an oily feeling and texture, but not thick	3

MILKING MARKS DENOTING QUANTITY OF FLOW, 10:

Escutcheon wide on thighs; high and broad, with thigh ovals	2
Milk veins long, crooked, branching and prominent, with large or deep wells.....	8

UDDER FORMATION, 26:

Udder full in front.....	8
Udder full and well up behind.....	8
Udder of large size and capacity.....	4
Teats well apart, squarely placed, and of good and even size	6

INDICATING COLOR OF MILK, 15:

Skin deep yellow in ear, on end of bone of tail, at base of horns, on udder, teats and body generally. Hoof, amber colored	15
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MILKING MARKS DENOTING QUALITY OF FLOW, 6:

Udder showing plenty of substance but not too meaty....	6
---	---

SYMMETRY AND SIZE, 5:

Color of hair a shade of fawn, with white markings. Cream colored nose. Horns amber colored, small, curved and not coarse	3
Size for the breed: Mature cows, four years old or over, about 1,050 pounds.....	2

 100

Bulls.

DAIRY TEMPERAMENT, CONSTITUTION, 38:

Clean cut, lean face; strong sinewy jaw, wide muzzle with wide open nostrils; full, bright eye with quiet and gentle expression; forehead long and broad.....	5
---	---

Long masculine neck with strong juncture to head; clean throat. Backbone rising well between shoulder blades; large rugged spinal processes, indicating good development of the spinal cord.....	5
Pelvis arching and wide; rump long; wide, strong structure of spine at setting-on of tail. Long, thin tail with good switch. Thin, incurving thighs.....	5
Ribs amply and fully sprung and wide apart, giving an open relaxed conformation; thin, arching flank.....	5
Abdomen large and deep, with strong muscular and navel development, indicative of capacity and vitality.....	15
Hide firm yet loose, with an oily feeling and texture, but not thick	3

DAIRY PREPOTENCY, 15:

As shown by having a great deal of vigor, style, alertness, and resolute appearance.....	15
--	----

RUDIMENTARIES AND MILK VEINS, 10:

Rudimentaries of good size, squarely and broadly placed in front and free from scrotum. Milk veins prominent....	10
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INDICATING COLOR OF MILK IN OFFSPRING, 15:

Skin deep yellow in ear, on end of bone of tail, at base of horns and body generally, hoofs amber colored.....	15
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SYMMETRY AND SIZE, 22:

Color of hair, a shade of fawn with white markings. Cream colored nose. Horns amber colored, curving and not coarse	8
Size for the breed: Mature bulls four years old or over, about 1,500 pounds.....	4
General appearance as indicative of the power to beget animals of strong dairy qualities.....	10

We recognize the Guernsey should be:

First. A dairy animal with a distinctive dairy temperament and conformation, having a strong, nervy structure with a corresponding flow of nervous energy, and every indication of capacity and vitality.

Second. In color of hair, a shade of fawn, with white on limbs and under part of body, are considered the prevailing markings, and some degree of uniformity is desirable.

Third. One of the important distinguishing features of the breed is the presence of a yellow color in the pigment of the skin, which is indicative of rich golden color in the milk. This is very pronounced in the Guernsey and held by her to the greatest extent under all conditions of stabling and feed. The intensity of this trait is more marked in some animals and families than in others, but it should be kept at the highest standard. It is fast being recognized that this color is accompanied by a superior flavor in the milk and thus in the butter.

Dairy Temperament.

By "Dairy Temperament" is meant a strong overruling predisposition or tendency to turn the consumption of food towards the production of milk with a high content of solids, especially butter fat, as against the constitutional tendency so often seen to turn food into flesh. Even in the strongest dairy breeds there are more or less frequent outcrops in male and female of the flesh-making temperament. To breed from such animals, while we are striving to establish a prepotent dairy temperament or tendency, is not wise. All cattle bred specifically for dairy purposes should possess a clear and decided dairy temperament, for it is that quality of character we most desire to establish, enlarge and perpetuate in the Guernsey cow.

This is especially indicated by the shape of the head, showing brain capacity, wide muzzle, open nostril, full bright eyes, feminine neck, and a construction of the backbone indicating a strong flow of nerve power and support from the brain to all of the maternal organs.

Constitution.

In breeding our domestic animals, especially for long service like the dairy cow, it is very important that they should have abundant vital power which we call "constitution." But constitution must be judged and measured by the peculiar function the animal is bred to fulfill. With the race horse the function is speed; with the steer, the laying on of flesh;

with the dairy cow, the production of milk solids. In all these various functions, the animal that is to represent any one of them must show not only large capacity in the line of that function, but also the ability to endure long and well the strain of such function, and keep in good health. Constitution is best indicated by a full development at the navel, and strong abdominal walls, showing that the animal when in a pre-natal state was abundantly nourished by the mother through a well developed umbilical cord.

Prepotency.

In the scale of bulls, for the first time, we believe, in the history of dairy breeds, this point is introduced. The reason we have included it is that "prepotency" is the chief consideration in the selection of all male breeding animals. The pedigree and conformation is often all that can be desired, but because the bull is lacking in prepotent breeding power he is an expensive failure. This quality is, in a sense, difficult to perceive or describe, but we know certain animals have it in high degree and others fail of it completely. It is fairly well indicated by vigor of appearance, strong resolute bearing, and abundant nervous energy. We would distinguish this from an ugly disposition. A bull is ugly by the way he is handled rather than by his breeding. What we want is strong impressive blood. A dull, sluggish spirit and action we consider indicative of a lack of true dairy prepotency, but we would prefer to breed to a rather sluggish appearing bull with first-class rudimentaries than to a stylish one with badly placed rudimentaries.

Rudimentary Teats.

We consider that a well balanced and well shaped udder in the cow is largely due to the way the rudimentary teats are placed on the sire. If they are crowded close together, the result is likely to be narrow pointed udders. If they are placed well apart, of good size, and well forward of the scrotum, the effect, we think, will be to influence largely the production of well shaped udders in the resulting heifers and counteract the tendency to ill-shaped udders inheritable from dams deficient in this respect. We believe the future excellence of the Guernsey cow will be greatly aided by close attention on the part of her breeders to this point.

LECTURE XLII.

FRENCH CANADIAN CATTLE.

Origin, History, and Development of the Same.

This breed is descended from stock brought to Quebec by the early French settlers, who came, for the most part, from the coast provinces of Brittany and Normandy. This was more than 250 years ago. The Jersey and Guernsey breeds, as has already been noted, sprang from the Normandy and Brittany stock; and the French Canadian represents the same blood, bred under different environments. Their milk, like that of the Jersey, is noted rather for quality than quantity.

Of the steps taken in the development of the breed, we know little, but the cattle were in the hands of a hardy class of people, who understood intensive farming, and there is good reason to believe that selection was practiced in breeding, though probably in a rather crude and divided manner; but milking qualities, capacity to consume large amounts of rough fodder (for the breeders do not consider it advisable to feed a highly concentrated ration), and great hardiness, have been the really essential points which have characterized the breed from the earliest times.

Since the establishment of the Herd Book for French Canadian cattle, in 1886, marked impetus has been given the popularity of the breed, and the high standing made by the French Canadian cows at Buffalo has increased their popularity in the United States, where a herd book has been established.

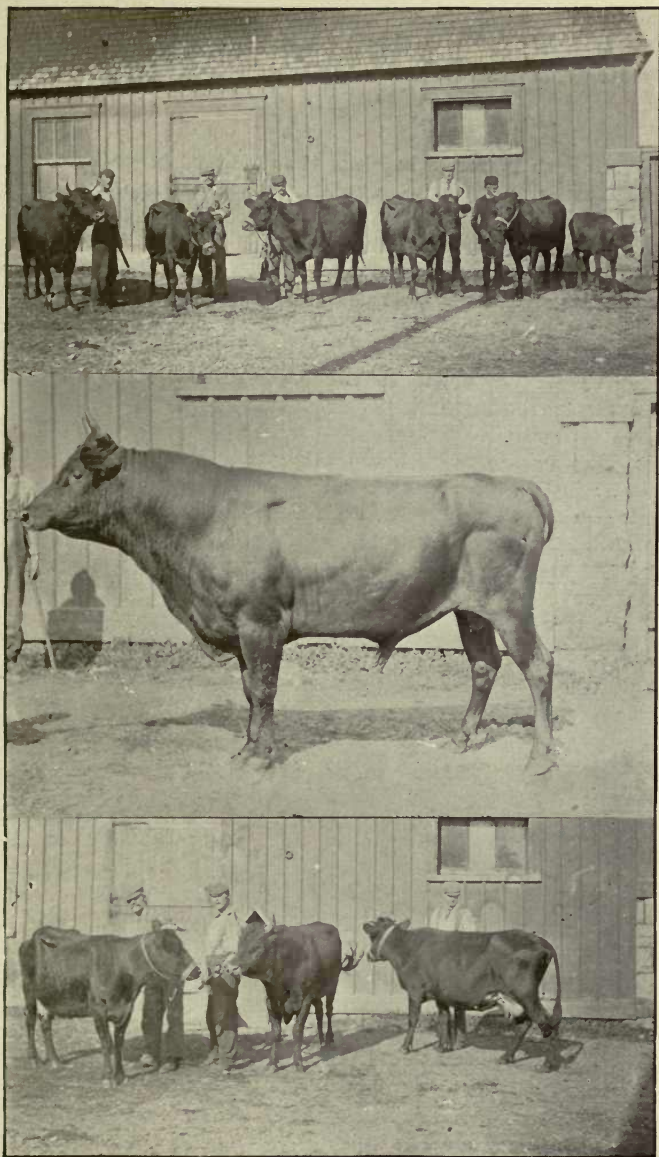


Fig. 36. French Canadian Cattle.
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Points to Be Considered in Judging and Selecting French Canadian Cattle.

Their size is somewhat less than that of other breeds of dairy cattle. The usual weight of an adult is from 700 to 900 pounds. In color they are black; there may also be a fawn or orange colored strip down the back and around the muzzle, but these lighter colors are not required. The strip around the muzzle is sometimes known as the Jersey muzzle.

From the fact that the breed is closely allied to the Jersey and fills the same purpose—the production of milk alone—they should be judged by the same general standard, save for the general points of constitution, barrel and color. Greater hardiness is looked for in the French Canadian cattle than in the Jersey, and this should be indicated by a deeper, wider chest; and the abdomen should also be of more generous capacity. So far as indications of milking qualities are concerned, the same points should be looked for and practically the same importance attached to them as in Jerseys. The French Canadian breed is, beyond a doubt, the hardiest race of dairy cattle known, and as they are rapidly improving under skilful selection, they may safely be counted as one of the coming dairy breeds for the north and west.

LECTURE XLIII.

KERRY CATTLE.

Their Origin, History, Development, and Points to Be Considered in Judging and Selecting the Same.

The Kerry is the only native breed of Ireland. It has been found there since the memory of man, and is, by general characteristics, a direct descendant of the *Bos longifrons*, which is believed to have been merely a domesticated form of the founder of our bovine race—the *Bos primigenius*. The characteristics of the true Kerry in 1872, and for all time previously, so far as is known, were as follows: a small, neat animal; very active; fine in bone; rather long in limb; a small, fine head, with lively, full eyes, full of fire and animation; cocked horns; color of body either black or red. The animals were small—live weight often not exceeding 450 pounds. The weight of a fat cow, a prize winner at Dublin, was but 420 pounds.

Another type of the Kerry, known as the Dexter Kerry, is claimed to have arisen from the introduction of some foreign blood about 1800, but of what breed is unknown. Certain it is that the Dexter Kerry differs from the true Kerry, being somewhat larger, very low set with a round, plump body, full and square in the hindquarters, and with short, thick legs, a heavy head, and rather straight horns. The cows (both Kerry and Dexter Kerry) are excellent milkers; they were exhibited at the Paris Expositions in 1878 and were very favorably commented on for this characteristic. Their development for the past twenty-five or thirty years has been

wholly along the line of improvement by selection of the best individuals, more with regard to milk than beef; but they possess, notwithstanding, a tidy carcass from a beef standpoint, and their flesh is much like that of the Scotch Highland cattle when well fattened—well marbled and free from gaudiness. In some cases their milking properties are quite extraordinary. In the case of a cow known as Red Rose, owned by Mr. Martin J. Sutton, England, a record was established that would test some of the greater milking breeds to surpass with any considerable number of cows. She weighed 762 pounds, and in one year gave more than thirteen times her weight in milk; and the following year sixteen times her weight. The points most desired in the improved type of Kerry or Dexter Kerry are much the same, save in that more fineness of bone and refinement about the head is expected in the true Kerry. A black color is preferable to breeders, but other colors are often found.

The body should be deep, fairly wide, the shoulders blending smoothly into the body, the hindquarters wide, level to tail head, deep, and well fleshed on the thighs and in the twist. The legs should be short, straight, with fine bone, and there should be unquestionable indications of deep-milking capacity, in a large udder, well balanced, with teats of convenient size and with large tortuous milk veins. The skin should be soft, pliable and oily to the touch; the coat of hair should be fairly long, and should be soft and silky to the touch. There should always be considerable natural flesh present. The size is always small, and the breeders do not care particularly about increasing the weight of their cows above 700 pounds to 800 pounds. The place the Kerry fills most acceptably is that of a family cow, well adapted to small shelters and a moderate supply of food, and furnishing a very liberal supply of rich milk.

Animal Husbandry *Series*

PART II.

KENNEDY.

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Sioux City, Iowa

ANIMAL HUSBANDRY SERIES

PART II. NO. III.

LECTURES

ON

LIVE STOCK JUDGING

AND THE

History, Development and Characteristics of
the Various Breeds of Live Stock

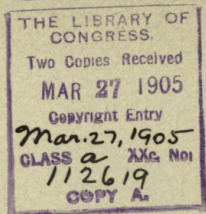
BY

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SIOUX CITY, IOWA.

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LECTURE XLIV.

ORIGIN AND DOMESTICATION OF SHEEP.

To all students of animal husbandry, the origin and domestication of the sheep should be not only an interesting subject of study, but also one that is practical and useful as well, for we find from history that from man's advent on the earth the sheep has been his constant companion as a source of food, clothing, and wealth.

The sheep is a four-footed animal, and is placed by the naturalist in the order, Ruminantia, to which order also belong the ox and goat; tribe—Capridae, genus—Ovis. Of this genus there are three species: Ovis argali, Ovis musmore, and Ovis aries, or domestic sheep.

The sheep resembles somewhat the goat, which belongs to the same tribe, Capridae, but differ from it in several points which serve as distinguishing marks. The goat has a beard, while only one species of sheep, and that a wild one, possesses such. The horns of the sheep, when such are present, have a spiral turn, while the horns of a goat turn up and back. Goats, especially some Asiatic species, are clothed with the finest quality of wool, but always bear an outer and longer coat of hair, while the sheep's coat is entirely of wool, with the exception, perhaps, of a few coarse hairs, known as kemp, which are almost eliminated from the fleece of the domestic sheep.

The three species of sheep mentioned above, Ovis argali, Ovis musmore, and Ovis aries, are practically all that call for our attention. The Ovis argali was the original wild sheep that inhabited the continent of Asia and from which the present native Asiatic sheep have sprung. The Ovis musmore, or European wild sheep, inhabited southern Europe and northern Africa, and to this wild species it is believed that we can look as the progenitor of all our modern breeds of sheep in Europe and America.

As stated above, the sheep seems to have been almost co-existent with man on the earth. From the story as contained in the Bible, we learn that the first men tilled the soil and were closely followed by the shepherds with their flocks. Cain and Abel offered sacrifices. Cain from the soil which he tilled and Abel from the firstlings of his flocks. Abel's was the more acceptable offering. Cain became jealous, and because of this jealousy resulted the first recorded murder. The old shepherds knew no abiding place. They wandered with their flocks from the plains to the hillsides and from the hillsides to the plains in search of green pastures and quiet waters, and so it is that sheep have acquired the nomadic habits so characteristic of them. It is in connection with sheep that we have the first recorded principles of breeding, when Jacob, to increase his wages or hire, resorted to the device of peeling the rods and placing them before the sheep as they came to the troughs to drink, that when they mated while there these impressions might be made upon their offspring and so increase the number that by virtue of their stripes would go to him as hire for his labor. The sheep at that time, as well as at the present, was kept as a source of wealth, and there is no reason to doubt that the flock masters of those ancient days practiced a system of selection and mating, and management as to housing and feeding, that increased the value of the flock under their care, and though they did not possess the mutton forms of the present day, it was from their fleeces that the costliest raiments of kings, queens, and princes were made. The adaptability of the sheep to different climates and conditions made it profitable to shepherds as a source of food and clothing before general field agriculture was practiced to any great extent. And is that not the case today on our western prairies? Are there not shepherds with thousands of sheep wandering on our untilled plains and hillsides?

Truly the sheep is the precursor of civilization. Greece, during the height of her power, was the sole possessor of sheep in Europe. When the Roman Empire was founded the sheep was introduced, and as the Romans extended their conquests the sheep was transported to their conquered possessions. So it was that Spain, with her abundant rich pasture, afforded a most suitable place for the development of what is now known as the Spanish Merino, a descendant of the

European wild species, *Ovis musmore*. Notwithstanding the present low status of Spain as an industrial nation, to her belongs the honor of developing and improving the condition of these sheep, so that even in the time of the Romans, Spanish wool was celebrated for its quality, which pre-eminence it retained up to the beginning of the nineteenth century.

In ancient times, sheep skins were used for clothing, but as civilization advanced, manufactured cloth made from the wool took their place. In consequence of this, the fleece became a subject of much study by the Romans, who, by a system of breeding, selection, and care in management, cultivated the fineness of the fleece to an extraordinary extent. Sheep were clothed to insure delicacy of wool filaments, the fleece was combed to prevent matting of wool, and the skin oiled and moistened with wine. Pliny, an ancient writer, states that the best wool of that time came from Apulia on the Adriatic Sea, and it was from this wool dyed with Tyrian purple that were made the costliest garment of royalty.

The owner of sheep at that time was looked up to and counted among the wealthy of the land. A flock of sheep was looked upon as a rich gift from one to another. Cicero, among other ancient worthies, owned large flocks of the progenitors of the Spanish Merino, and it is from his writing that we learn something of the principles of breeding as advised and practiced by himself. It is as follows: "There will be always those in every flock whose forms you will wish to change, therefore, always repair them, and choose out from the flock the best offspring yearly. Then, after the birth, the care is transferred to the lambs and they brand them with the marks and the names of the race which they may wish to breed for preserving the flock, and, if wool be your care, select white flocks with soft fleeces. And if, although the lamb himself be white, reject him which has a black tongue under his moist palate; lest he may stain the fleeces of the lambs with black spots, and look about for another in the full field."—Stewart.

It is recorded that enthusiastic flock masters, of even those early times, so appreciated the value of a good ram that one paid a sum equal to \$500 at the present time for a ram from one of the best sheep breeders to put at the head of his flock.

Excessive care predisposed the Roman sheep to constitu-

tional weaknesses, and at the fall of the Roman Empire the fine woolled sheep declined, and now only a few badly formed and very inferior fine woolled sheep are to be found in Italy.

Sheep in England. It is with special interest that we look up the history of the sheep in England. Nothing has been written to tell us just how or when sheep found their way to ancient Britain, but it is certain that at a very early date wool and hides formed an article of commerce from that island. The Phoenicians traded in tin and copper, and following them came the Romans, whose system of tillage and presence there made it possible for sheep to exist on the island, where before they would have been destroyed by the wild beasts that existed. Cirencester and Winchester soon became noted for their factories for manufacturing cloth, which received favorable comment from the historians of Rome, and it was from Britain that some of the finest wool was transported to the Roman capital, where it was considered an article of luxury.

The earliest origin of the English breeds of sheep is shrouded in mystery. Yet we do know that certain breeds have occupied definite localities since the earliest record, and from these localities the different breeds of English sheep can be traced, together with their sources of improvement and the evolution of the recognized breeds of sheep of the present day.

Sheep in North America. The history of the sheep in North America dates back to the conquest of Mexico by the Spaniards in the fourteenth century. When Pizarro conquered Peru, the llama, belonging to the goat family, was found in South America, but not farther north than Central America.

After the conquest of Mexico had been accomplished, and the country parceled out to the different conquerors, in order to stock the land it necessitated the transportation of large numbers of Spanish sheep to America. So that even today the Mexican sheep wandering about the hills and plains traces back to the "silky fleeced Merino of Castile."

Sheep multiplied and spread rapidly up through New Mexico and California, so that now most of the sheep of the south and west trace their origin to these early importations from Spain.

The New England States received their importations from

England and Holland. Large numbers were brought over prior to the war of independence. High-priced imported cloth forced the New Englanders into home manufacture, and in time their maidens became, as their ancestors in Old England, expert spinners, and their people were clad in what was termed homespun garments.

During the last century many importations of the best breeds from all countries were made, embracing from the Spanish Merino to the fine wooled Persian sheep. Annual importations for breeding purposes alone amount to many thousands. During the last twenty years, owing to the decrease in the price of wool, the number of wool flocks has decreased while the number of mutton flocks has increased. In the year 1879 the United States had 38,123,000 sheep, while in 1900, according to the annual report of animal industry, the number had increased to 61,600,811, valued at \$170,337,002.

LECTURE XLV.

CLASSIFICATION OF SHEEP.

For thousands of years the sheep industry has been one of very great importance to mankind. The chief occupation of the old patriarchs was that of tending their flocks. In early times sheep were kept not for the production of flesh, but for wool and milk, and any improvement sought after tended to increase the fineness and quantity of fleece and also the quantity of milk. Asia was noted for its fine woolen goods two thousand years before the Christian era. Wool was dyed with costly Tyrian purple and made into garments for kings, queens, and other dignitaries. Rome also boasted of her fine woolen goods manufactured from fleeces unexcelled in fineness even at the present day.

Sheep and lambs were offered as sacrifices in early times and were also, no doubt, used as food, but not until a century and a half ago were any systematic efforts made to improve the fleshing qualities of these animals. To Robert Bakewell of Dishley Hall, Leicestershire, England, is due the credit for the improvement in the mutton breeds of sheep. The improved Leicester of today is the product of his farseeing mind, together with the patience and persistence necessary for the attainment of such a worthy object as that of developing a breed of sheep that would mature early; and when mature, would carry a large amount of valuable flesh with a small percentage of offal.

Many breeders in both England and Scotland following Bakewell's methods took up the work of improving the sheep that were in their immediate localities, and hence we have the great number of improved mutton breeds of today.

Canada, too, following the lead of the motherland, gave her attention to the improvement of the mutton breeds of sheep, while the Americans, up to a few decades ago, were devoting their energies to the improvement of the fineness and quantity of the fleece—chiefly of the Merino. While

improvement in fleshing qualities was sought after by Bakewell and his followers, the character of the fleece was at the same time much improved, due to careful methods of selection, feeding and management, so that the mutton sheep is valuable not only for its carcass but also for its fleece.

We have, then, for our first classification, sheep divided into mutton breeds and wool breeds.

A mutton class may be defined as one which possesses a large amount of flesh on the back, rib, loin, and hindquarters, with a good fleece as a secondary consideration, while a wool class is one which will shear a heavy fleece of fine, long, strong, lustrous, crimping wool, with flesh as a secondary consideration.

Since wool has depreciated so much in value, and mutton, on the other hand, has a steady demand at a fair price, it is well that we should learn something of the possibilities of the mutton sheep. Careful investigations at the Iowa Experiment Station with representatives of seven mutton breeds showed that a pound of gain in live weight was made from $7\frac{1}{4}$ pounds of feed (dry matter). This increase in live weight was made at a cost of 2.88 cents per pound.

Comparing the relative cost of making mutton and beef, it was found that while the lambs required 7.25 pounds dry matter, steers required 8.9 pounds to produce one pound gain.

The breeds belonging to the mutton class are as follows: Southdowns, Shropshires, Oxford Downs, Dorsets, Suffolks, Hampshires, Leicesters, Lincolns, Cotswolds, Cheviots, Wensleydales, Blackfaced Highlands; all of which produce fleeces varying in quantity, length, and fineness.

The wool class comprises the Merino and his many offshoots, such as the Rambouillet, Delaine Merino, American Merino, Black Top Merino, etc.

The mutton breeds may be divided again into Lowland, Down, and Mountain breeds. To the Lowland class belong the Leicesters, Lincolns, and Cotswolds; to the Downs belong the Southdowns, Dorsets, Shropshires, Oxfords, Suffolks, and Hampshires. While the Cheviots and Blackfaces occupy the higher scantier pastures of the hills.

Sheep may be divided again according to the character of the wool into fine, middle, and coarse woolled classes.

To the fine wools belong the Merinos—American, Delaine, and Rambouillet.

The middle wools comprise the Southdown, Dorset, Shropshire, Suffolk, Hampshire, Oxford, and Cheviot.

The long, coarse, wooled breeds are the Leicesters, Lincolns, and Cotswolds.

The influence of climate and food are so great in causing variations in the character of breeds of sheep that in time these classifications may have to be adjusted, but for the present they are sufficiently accurate to guide us in the selection of a breed to suit our condition and fulfill the object sought for.

LECTURE XLVI.

JUDGING FAT SHEEP.

Type Required by the Feeder. The feeder and the butcher are two distinct individuals. It is quite true that the butcher must procure his animal from the feeder; but would have it such a form as would supply only valuable cuts of meat; while the feeder must look for an animal with vigor of constitution and other characters that indicate to him that the animal will eat large quantities of food and make the very best use of it at the earliest possible age. In order, then, to produce the fat sheep, it is necessary to know the type of lamb to select for the feed lot.

In a previous lecture we took up the selection of steers for the feed lot. As the low set, blocky type gives the most satisfactory gains with steers so it is with lambs. And it has been shown as well at this station and others that the younger the lamb the more economical are the gains made. Also pure bred or high grade lambs put on flesh more economically than do scrubs.

Head a flock with a ram that is a good individual both as to type and constitution. Not all his get will be like himself, but a large proportion will take on his form and aptitudes. An excellent illustration of value of a good ram might be seen at the International Live Stock Show of 1903 in the Wisconsin exhibit. The champion wether was the product of a Southdown ram on a scrub native ewe.

A lamb for the feed lot must, in the first place, possess health and vigor, indicated generally by a bright, clear eye, pink skin and elastic, springy condition of wool. His head should be short and broad; neck short and evenly blended with the shoulder at the neck vein. His brisket should be prominent and he should have good depth from top of shoulder to bottom of chest, which should also possess good width. There should be no depression behind his round, compact shoulders, either on top or at the sides. The fore ribs should

spring out well from the back in order to give large heart girth and room for vital organs. Large heart and lungs mean good digestion and assimilation of food. The back should be straight, strong and wide, because it is on these parts that is carried the valuable parts of the carcass considered from a butcher's point of view. A wide loin, long, deep hind-quarters should accompany this form. A good deep body on short legs will make of this lamb a capital animal for the feed lot.

The handy lamb for the butcher and the one that will make most for the feeder is one that will weigh about one hundred pounds, when ripe. A lamb at this weight is termed handy because he cuts up with a less percentage of offal and into smaller cuts for customers.

As to when a lamb is ripe it may be helpful to quote the following interesting description given by Professor John A. Craig:

"When put into a feed lot under proper conditions, lambs will usually begin to show the influence of good feeding at the end of the third or fourth week. During this time they seem to be simply getting into good condition to put on flesh, though it appears that some flesh is being deposited internally. Toward the end of that time many of the lambs may be noticed standing leisurely in the sun in a partially stretching posture. This pose in lambs is a delight to the shepherd. The fattening process seems to extend from the internal regions, and is first in evidence at the tail. It then passes along the back over the shoulder and reaches the neck; from this line it seems to extend down the sides and over the breast in front. There are six points at which its extension seems in evidence—at the tail, middle of the back, the neck, the flank, the purse, and the breast. Judges of condition handle these different points and seem to arrive at the same conclusions from continued practice in observing the development in any one of them, although a critical examination will reveal that lambs sometimes fatten unevenly and be good in one or more of these points and comparatively deficient in others. By feeling the tail head some will form their opinions as to the degree to which the lamb is fat. Others are satisfied with feeling the back. Many after feeling the tail grasp the neck and base their opinion on the fullness of that part. The flank and breast are often used for further

assistance, and some butchers estimate condition from the fullness of the purse. At any of these points, more especially the back, the covering should be such in the prime lamb as to prevent feeling the sharp projections of the backbone. In fact, it can hardly be said that a lamb is really prime unless instead of projection of backbone there is a distinct groove running from the tail to the shoulders, and this covering should extend well down over the sides without softness due to excessive fat or oily tissue. All lambs do not fatten as smoothly or as uniformly as herein indicated. In most lambs, however, the worst defect is bareness of the loin and lightness in the hindquarters. With these parts well covered and fully developed, a rather sharp shoulder and peaked brisket may be overlooked. Not only should the flesh be even over the valuable cuts, but it should be firm. Very often it will be found that soft rough patches will be present about the head of the tail, owing to the depositing of too much soft flesh on the back, which may slip from there on the over-ripe lamb and gather at the flank or along the sides in long soft rolls."

At one hundred pounds weight the lamb should be fat in order to suit the demands of the market. The judge decides as to condition usually by the thickness of loin, scrag and fullness of cod or flank. The carcass of mutton is divided into seven cuts: leg or gigot, loin, rib, breast, neck or scrag, shoulder, shank, valued as follows: leg 10c, loin 9c, rib 9c, breast 2c, shank 2c, shoulder 2c, and neck 1c.

In an experiment conducted by Professor Curtiss at this station in 1896 he found the following average in ten each of seven mutton breeds of sheep:

Leg, 22.2 pounds, at 10c.....	\$2.22
Loin, 17.5 pounds, at 9c.....	1.57
Rib, 14.5 pounds, at 9c.....	1.30
Chuck, 19.8 pounds, at 1¾c.....	5.34
<hr/>	
\$5.43	

From the above it will be seen that the leg, loin and rib constitute the valuable cuts of a mutton carcass, especially it is true of the leg, which must be developed both inside and outside, or the carcass will be much depreciated in value.

Distinction should also be made by the judge between over-ripe lambs, ewes and wethers where "slipping" has occurred, as there is much waste to the butcher, who has to trim off these rolls of waste blubbery fat in order to make his meat presentable to the customer.

Defects in the Mutton Form. The judge will often find the mutton form deficient in one or more of the following points. The shoulder instead of being round and well covered on top will be pointed and bare. The backbone that should be hidden underneath a covering of firm muscular tissue and fat will stick up harsh and uncovered. A narrow, high, uncovered loin is most undesirable. A short, narrow rump and undeveloped leg-of-mutton will oftentimes accompany an otherwise good carcass.

LECTURE XLVII.

JUDGING SHEEP.

Method of Procedure. In judging any class of live stock, system is needed. But especially is it required in the handling of sheep where so many different points have to be noted and passed upon. Then, too, the number in a class is oftentimes large and the judge working without system would find himself at a loss in remembering the merits and demerits of the different sheep examined.

It is a good plan to have sheep, if in the breeding or feeding classes, moved about a little. In so doing the judge has an opportunity of noticing the style, as well as the general type and vigor of the animals, together with any defects that may happen to exist in carriage of body and action of feet and legs. A weakness of back, too, that might otherwise be concealed will be revealed oftentimes. During this performance of the animals the judge forms a pretty good estimation of them, which he afterwards verifies with his hand and a closer examination with his eye. They are then lined up and the judge proceeds to handle the sheep, beginning at its head. Every motion of the judge should be to a purpose. With thumb and forefinger of one hand he presses down the lower lip of the sheep, approximating its age, and, at the same time, noticing the formation and length of jaws. He then notices the formation and wool covering of head, observing the brightness and expression of the eye, size, shape and covering of the ear, as well as want of horns in hornless breeds. By this time he has formed some notion of the quality of the animals.

With both hands pressed tightly around the neck he ascertains its thickness, depth and gradual enlargement, from the head to the shoulder, and marks the smooth even blending of the neck vein with shoulder, or otherwise, as the case may be. With fingers close together and hand held nearly flat, he handles the sheep from the shoulder all along the back to tail head. In doing this he lowers the tips of the

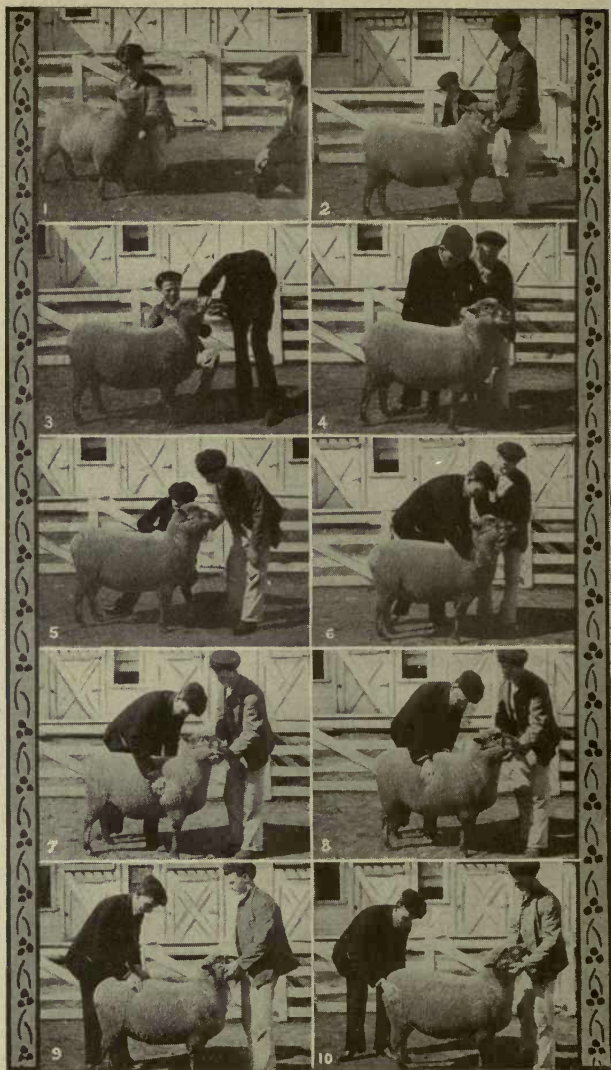


Fig. 37. Method of Judging Sheep.

1. Observing head and front parts. 2. Side view; study of form, legs and pasterns. 3. Examining teeth to ascertain age. 4. Examining scrag and nape. 5. Examining smoothness and compactness of shoulders, depth and width of chest and wool covering of belly. 6. Examining shoulder points and shoulder veins. 7. Examining hearth girth, filling and character of flesh behind shoulder. 8. Examining spring of rib and flesh covering of rib. 9. Examining width and filling of loin. 10. Examining width of hind quarters.

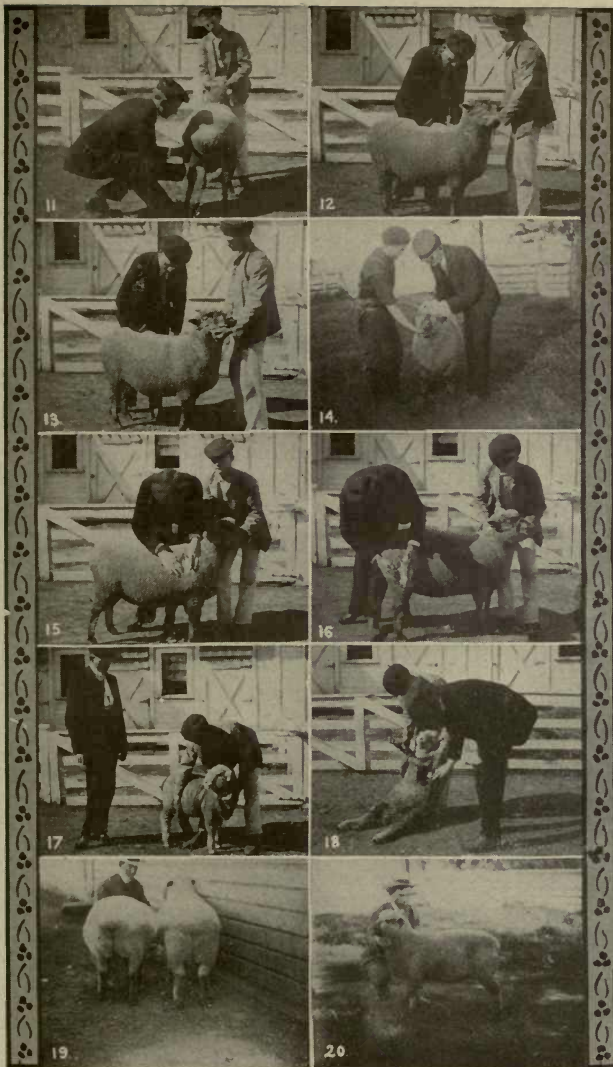


Fig. 38. Method of Judging Sheep.

11. Examining filling of leg of mutton. 12. Examining the covering and quality of flesh on the back, and noting density of fleece. 13. Handling further back. 14. Examining head wool for dark fibers. 15. Examining wool on shoulders to ascertain its fineness, crimp and quality and also color of skin. 16. Examining wool on lower thigh. 17. Showing method of upturning a fine-wooled sheep to determine wool covering on belly, armpits and flanks. 18. Positions to be held in for judge to examine under covering of fine woolled sheep. 19. Notice the low, full twist of sheep on the right as compared with that of the sheep on the left, also notice how well his leg of mutton is filled on the outside. 20. Kind of lamb to select for feed lot, low down, blocky, with straight top and under line and strong heart girth, well filled leg of mutton and fullness of loin.

finger just enough to acquaint himself with the quality and depth of the flesh underneath his touch, at the same time noticing the density of the wool. This must be done with a good firm pressure, otherwise one cannot form a correct notion of the qualities he wishes to pass judgment upon. It is a bad sign to see a judge stick his fingers down into a fleece. Then he places the left hand on the floor of the chest and the right on top of the shoulder to ascertain the depth, and while in this position he examines the under parts to find out if the sheep is as well covered with wool as it should be. With both hands he feels the sheep just behind the shoulder for spring of rib and thickness through heart girth, and on further back to ascertain the covering of flesh on the ribs. In a similar manner he measures the width of loin, at the same time notices its depth. Both hands should be used then in ascertaining the form and filling of rump and hindquarters. Observe the filling of the hindquarter on the outside of leg, and with the hand grasp the leg-of-mutton firmly to find out if the leg is well filled on inside, and the distance to which it is carried down towards the hock. Notice also the depth of twist and spread of hind legs. When examining the fleece, as we shall take it up in another lesson, observe also the color of the skin.

It must be remembered that the handling is done, and must be done, to arrive at the correct form of the animal. No sheep appears in the show ring in his natural covering, but is trimmed in such a way as to conform to the type of the showman's ideal. A sheep with plenty of wool and approaching this type can be trimmed to appear like the perfect animal.

Besides the conformation and mutton qualities of a sheep, it is necessary to take into consideration the value of its fleece. In order to do this it will be necessary to devote a short time in studying what constitutes a valuable fleece, and this will be done in a succeeding lesson.

LECTURE XLVIII.

JUDGING BREEDING SHEEP.

All told there are something like twenty-five different breeds of domesticated sheep, fourteen of which we shall study. If there is one thing more important than another for a judge to know, it is the types that are characteristic of the different breeds of sheep that may be presented in the show ring. This is the case with sheep more than with any other class of live stock.

How Types Are Formed. Several causes contribute to the formation of type as found in the different breeds of animals. Bakewell's method of selection and mating produced the Leicester type in sheep. Cruickshank's method of selection and mating has given us the Scotch Shorthorn type. Again the function of an animal has much to do with the formation of a breed type, as illustrated in the American trotter, the Arabian horse, and the dairy cow. Selection and mating and function are not the only factors concerned in producing breed type, for notice the difference in type between the Holstein and the Jersey, Shire and Shetland pony, Shorthorn and Kerry. And who has not observed the difference between the coat and appearance of the horse that has taken shelter on the lee side of a straw stack during the winter and the sleek, glossy coat of the groomed and blanketed, well-fed driver, whose environments have been changed. Environment has had much to do in the making of breeds of sheep and is a very important aid to man in helping him to select a breed that will suit the conditions prevailing in his locality. As has already been stated in a previous lecture, sheep have adapted themselves to different conditions, an important one being altitude of land. The lowland breeds differ from the mountain breeds—types that have been developed as suited to give the best results under the conditions afforded in these different altitudes. The different breeds have been taken in hand by man, associations have been formed for the sole purpose

of fixing and retaining the type by elaborating scales of points and rules governing the admission of animals to pure bred records. It is all-important that such types be kept fixed, for then men in different parts of the world, knowing the conditions and environment that have produced a certain type, can select the breed that will do best under the conditions prevailing where their operations must be carried on. Australia's great sheep pastures were once inhabited by the Spanish Merino because they wanted fine wool. Now, to produce muttons, they have imported Lincolns, Leicesters, etc., to cross on native ewes. The lowland farms of Lord Portland support the Leicester, the higher lands afford pasturage to the Cheviot and Leicester cross, while the scanty hillsides are cropped off by the agile Blackfaces. Near Roquefort in France is kept a breed of sheep noted for their production of milk, from which is manufactured the celebrated Roquefort cheese, that sells in New York at \$1.00 per pound.

Breed type is all-important. When sheep have been carefully selected and mated for fifteen or twenty years, as illustrated by Bakewell's work with Leicesters, the breed type has become fixed and the qualities of parents may be expected to be transmitted to their offspring. It is the duty of the judge to know the type of the different breeds as adopted by the breeders and idealized in their scale of points, and he should adhere to this fixed type in forming his judgments and placing the animals. And the breeder himself should seek to produce animals that will conform to the ideal form as outlined in the scale of points. If the judge and the breeder have a common ideal a breed type will be fixed, the breed will become prepotent and great good will be accomplished.

Points in Judging the Ram. The ram is like other male animals, the better half of the flock, and as such should be judged accordingly. He must, of course, conform to the ideal type as outlined in the scale of points as adopted by the breeders. In addition he should show masculinity. His head should be short and wide, and full across forehead and between the ears. If he belongs to the horned breed, his horns should spring out strong from the head and turn out from the face. These characteristics, together with a little Roman nose, short neck and heavy scrag, are signs of good breeding and give evidences of prepotency, which is of all things important in a sire. A great deep chest that is well

let down between his short front legs along with a round spring of rib and thick heart girth are indications of constitution. A ram lacking in these requirements should not be placed at the head of a flock. Following these points are a strong, wide, level back and loin, a deep body set on short, straight, strong, fine-boned legs with strong, upright pasterns. Be sure to examine pasterns, as these are very important and are oftentimes overlooked by the judge. Heavy, overdone show sheep oftentimes possess broken down pasterns, and are valueless as sires. The ram should evidence quality in fineness of wool, color of skin and fineness of bone. His flesh should be fine and evenly laid on all parts of the body. Too often an overfitted show sheep is bare on back and shoulder owing to "slipping," when bunches of fat will be found on different parts of body, especially at the front flank and on the ribs. Discountenance this kind of sheep as a sire. A dense elastic fleece is most desirable. If he belongs to a breed with wool covering on the head, the more heavily covered, the better is it liked. It is important that the belly be well covered, as this indicates constitution and power to withstand exposure—qualities which he will transmit to his progeny. The animal of the form thus described should sire strong, healthy, early maturing lambs, valuable to both breeder and feeder.

Judging the Breeding Ewe. The ewe, too, must conform to the breed type. Unlike the ram she must be feminine in character. The head must be longer and slimmer and the neck, too, must have an absence of the thickness characteristic of the ram. She should have a deep, broad chest, and deep, long body to provide room for developing a large, strong foetus. Early maturity is brought about by good feeding. The ewe must be a good milker and should show somewhat the wedge shape of the dairy cow. Her flesh should be put on evenly and, as in the ram, there should be no evidences of "slipping" due to falling away of flesh from the back.

The throat of both male and female should be examined to ascertain if affected with goitre, which is an enlargement of the thyroid glands in the throat.

Judging Lambs. In this class, the judge often has difficulty because of differences in age of the contestants. Of course due allowances must be made. As to what the lambs

will develop into must be left to the observations and experiences of the judge. In selecting lambs it has been the experience of most breeders that a growthy lamb with large frame well put together, showing a strong, level back at six months old, is likely to produce a better shape than the short-bodied, plump lamb showing full development at that age. Strength and straightness of back, depth and thickness of body and even covering of flesh should receive the attention of the judge.

In passing upon him let it be remembered that the ram is the most important member in the bunch. He it is that will give form to the flock. His progeny is also a mark of his power to produce offspring like himself. Ewes decrease in usefulness as their age advances, otherwise they should be considered on their merits.

LECTURE XLIX.

SHROPSHIRES.

Origin, History, and Development.

The original home of these sheep is in Shropshire County, in central west England, where they were long known as the Morfe Common sheep. Reference is made in regard to their wool as far back as 1343. Plymly, writing the history of Shropshire agriculture in 1803, describes the sheep as follows: "There is a breed of sheep on the Longmynd with horns and black faces that seem an indigenous sort. They are nimble, hardy and weigh nearly 10 pounds per quarter when fatted. The fleeces upon the average may yield $2\frac{1}{2}$ pounds." In 1792 Wilson quotes from the report of the British Wool Society in regard to the Morfe Common sheep thus: "On Morfe Common, near Bridgenorth, there are about 10,000 sheep kept during the summer months, which produce wool of a superior quality. They are considered a native breed; are black faced or brown or spotted faced, horned sheep, little subject to rot or scab."

The sheep thus described are supposed to have been the original Shropshire sheep, and it was on them that the improvements were effected. The Shropshire of today is not a pure breed in the same sense as is the Southdown, as we shall presently see, although we do consider it a distinct breed of sheep.

Upon these small, light bodied, light fleeced sheep Southdown rams were used to rid them of horns and still keep the dark faces and legs. From this cross was obtained a horn-

less sheep, but one still lacking in size. Leicester and Cotswold rams were then used in order to give the desired size. For some years a somewhat ununiform type was the result, owing to a lack of uniformity of type on the part of the breeders; but careful crossing followed by careful selection to type accomplished the valuable breed of Shropshires that we have at the present time.

At the Royal Show Yard at Gloucester in 1853 came the turning point in the history of Shropshires. From that time on their superiority as a breed has been recognized, and now at the great English shows they outnumber all other breeds. They have spread over the counties of Shropshire, Staffordshire, Worcestershire, Herefordshire, and Northern Gloucestershire. Large flocks are owned in Scotland and Ireland. On this side the Atlantic, in Canada and the United States, the Shropshires hold the premier place. Its valuable qualities are thus outlined by Mr. Preece of Shrewbury: "It's a farmer's sheep, a rent-paying sheep, a tenant's sheep. It's a money-making, wool-producing, mutton-carrying sheep. It's a bank, a save-all, a frugal living and quick fattening, hardy sheep."

The Shropshire is a medium sized sheep, larger than the Southdown, and a little smaller than the Oxford.

It is better adapted to grazing arable lands where food is plentiful than on the rougher hillsides, where the Southdowns do well. The Shropshire gives excellent results when crossed on Merino ewes or on the ewes of the long-wooled breeds. The mutton is of excellent quality; equal to that of the Southdown, with a large percentage of lean meat. The carcass dresses out well, too. The lambs are early maturers. The fleece of the Shropshire is of medium length, fine and dense and of good quality. Ewes on an average shear 8 to 9 pounds, while rams shear 12 to 15 pounds unwashed wool.

LECTURE L.

SHROPSHIRE.

Points to Be Observed in the Judging and Selection of the Same.

It goes without controversy that for a judge to be able to pass upon a ring of Shropshires, he must first be acquainted with the type. It is true that the Shropshire belongs first of all to the mutton class of sheep; but all mutton sheep are not Shropshires. What is there that characterizes the Shropshire and makes it a distinct breed, makes it different from all other breeds?

When it first catches your eye, you notice its stylish carriage. Its head is held somewhat erect in a rather proud manner. It steps off lightly with an elastic spring.

In form it is low down and blocky, in every way a mutton sheep.

Now comes its breed markings. Look at the head. It is broad and short, though a little longer than that of the South-down. The head of the ram should show masculinity. It should be high and wide between the ears, which should be short, somewhat rounded and of medium thickness. A thin ear indicates weakness of constitution. The forehead and face should be covered low down with wool. The more wool on the head the better is it liked. The nose should be slightly Roman and strong with large nostrils. The face not covered with wool should be dark brown in color, but the wool on the head, especially back of the ears, must be free from dark hairs. Large bright eyes are sought after. The head should join neatly on a strong well muscled neck. A strong scrag or nape is desirable in the Shropshire. Bright eyes and strong neck indicate constitution. The neck should blend

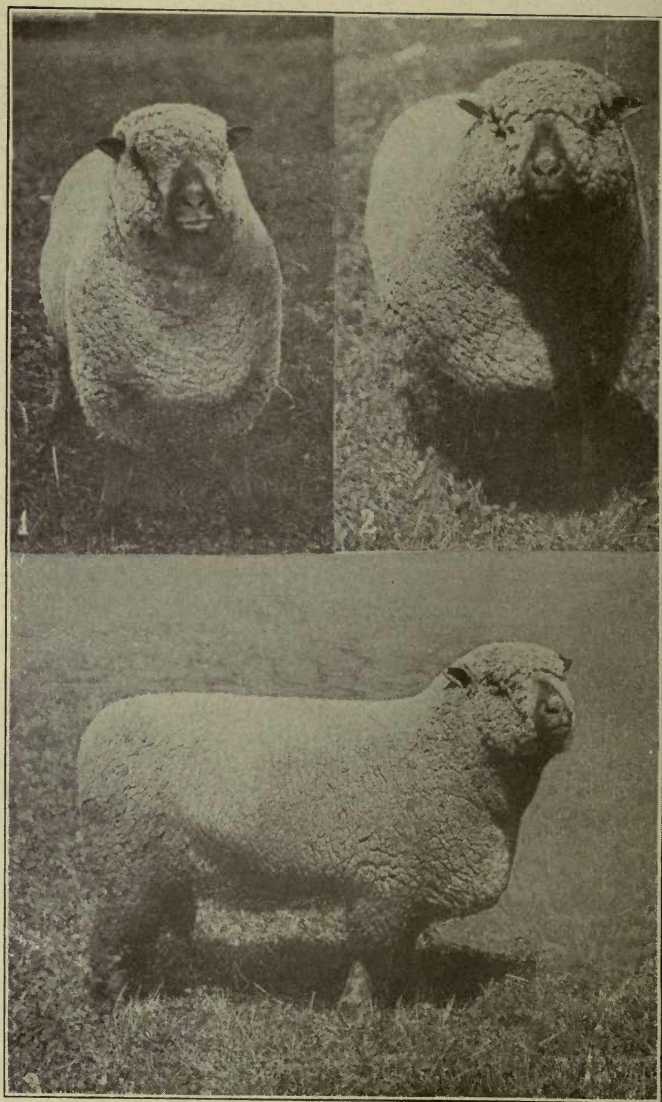


Fig. 39. Shropshires.

1. Front view of Shropshire ewe. 2. Front view of Shropshire ram.
3. Side view of Shropshire ram.

smoothly with well laid shoulders, compact and well filled on top. A wide, deep chest with full, prominent brisket, giving the sheep a good front, is desirable in the Shropshire. The front of the sheep should settle down between strong, straight, clean boned fore/legs with strong, straight pasterns. The legs must be well woolled right to the hoofs and brown in color as the face.

A **strong, level, wide** back and loin with an even covering of firm flesh should be found in every Shropshire. The rump should be straight and well filled so as to give it a uniform width right down to hock, and the twist should be low down and well filled with muscle, giving the sheep a wealth of leg-of-mutton.

The ribs should have a wide spring and a good covering of flesh. The hing legs should be wide apart, straight and strong, with strong, straight pasterns. The hocks when viewed from behind must be straight, not bent in.

The fleece is dense and elastic and of medium length and fine. It should cover the sheep on all parts of the body from the nose to the hoofs, and should be free from dark spots.

Under the fleece a pretty pink skin should be in evidence. Avoid sheep with dark bluish skins.

The Ewe. The ewe should have the general breed characteristics possessed by the ram, but she must show a feminine character. Her head will be finer and a little slimmer. She will have no Roman nose. She must have a good full nape. The neck will be a little longer than that of the ram, and the body, too, should be long and wide and deep to give room for the development of a strong foetus.

Points of Excellence—Shropshires.

Counts.

General Appearance. Attractive, indicating breeding and quality, with stylish carriage and a symmetrical form, covered with dense fleece.....	25
Constitution. Robust, as indicated by width and depth of chest, strength and formation of neck, and by bold, active movements	10
Size. In breeding condition when fully matured. Rams should weigh not less than 180 to 225 pounds, and ewes should weigh not less than 125 to 170 pounds.....	10
Fleece and Skin. Fleece of good length, dense, elastic to	

touch, medium fine, free from black fiber, slightly crimped, with evenness of texture throughout; scrotum of rams well covered with wool. Skin light cherry color, clear and free from dark spots.....	15
Body. Well proportioned, with shoulders well placed, fitting smoothly upon chest, which should be deep and wide, broad and straight back, thick loins, well covered with firm flesh; hindquarters well finished; twist deep and full	20
Head and Neck. Head, short, broad between the ears and eyes, bold and masculine in rams, without horns, well covered with wool, ears short and erect, eyes bright, color of face and ears dark brown. Neck of medium length, strong and masculine(especially in rams), symmetrically joined to head and shoulders.....	15
Legs. Well set apart, broad, straight, color dark brown and well woolled; pastern strong and upright.....	5
Total	100

LECTURE LI.

OXFORDS.

Origin, History, and Development.

This is another breed of sheep that has been established by judicious crossing up to a certain point when mating took place within its own class.

In order to produce a better sheep for the farmer, the butcher, and the consumer, Mr. Samuel Druce of Eynsham, England, began operations by crossing a Cotswold ram on Hampshire ewes. This work he began in 1833, some seven or eight years before Mr. Humphrey began his work which culminated in the Improved Hampshire. So that we may conclude these Hampshire ewes used by Mr. Druce were of a somewhat ununiform lot, rough, loose, coarse and lacking a fixity of type.

Mr. Druce found better results when he used the second or third crosses than he did with the first cross. It is said that the flockmaster adopted the plan for a time of dividing his ewes into three classes. On his best ewes, that is, those that conformed to his ideal type, he put a cross-bred ram, on the small ewes a Cotswold ram, and on the coarser ones a Down ram. Quite a number of other men followed Mr. Druce's lead, and from the increased numbers better opportunities for selection were afforded.

As time went on, improvements were in evidence and uniformity began to assert itself. The speckled faces gave way to uniform dark brown, with sometimes a splash of gray on the nose. The rough, coarse form became smooth, refined and evenly fleshed. The body was covered with a good even

fleece. The lambs produced were growthy and early maturing.

Mr. Druce called these sheep his "Half-breds." In 1854 he began mating wholly within his half-breds, and from that time on no foreign blood has been introduced. Up to this time the classes of sheep at the Royal were Leicesters and Southdowns, Longwools (not Leicesters), and Shortwools (not Southdowns). In 1860 the Shropshires obtained a separate classification at Canterbury, and very soon after this in 1862 the other breeds were given a place. Among these was the new breed, called, up to 1856, Down-Cotswold, but from that time on named after the county in which it took its rise, the Oxford Down.

The Oxford is the largest of the Down breeds. It has an excellent mutton form and gives good result in crossing upon other breeds for the production of early maturing lambs. Its fleece is heavier and coarser than that of the Shropshire.

The Oxford is a very popular sheep in the United States, Canada, and, in fact, all of the British colonies.

Because of its large form the Oxford does better on arable land where food is plentiful. It is better suited where intensive farming is carried on than to sections where forage is scanty.

In 1884 the American Oxford Down Sheep Record Association was organized to look after the interests of the breed.

LECTURE LII.

OXFORDS.

Points to Be Observed in the Judging and Selection of the Same.

The Ram. He must have the true mutton form, and in addition to this he must possess the characteristic markings of the breed. The Oxford is larger than the Shropshire—a sheep which it resembles somewhat. The Oxford has a little more stylish appearance, carrying its head a little more proudly. Its head is a trifle longer with a slightly Roman nose. The ears are longer, thinner and more pointed than those of the Shropshire. The head should be wooled heavily down to the eyes and there should be no black hairs in evidence back of a line drawn from ear to ear. The freer the head covering is from black hairs the better. On his forehead there should be a tuft of wool, while on the Shropshire it appears as a hood. There should be a good width between the ears and he should have a strong nape and scrag. The face should not be black, but should be brown or gray, and the legs must possess the same color. Constitution, vigor, condition, and quality, as well as strong bone and straight legs and pasterns must be sought for.

He should be well covered with wool all over the body. Look for belly and leg covering well down to knees and hocks and even to fetlocks. His fleece, it will be noticed, is a little longer, coarser and more open than that of the Shropshire. Improvement can still be made in the Oxford, as is the case with all other breeds.

The Ewe. The ewe possesses the characteristic markings of the breed, but must show femininity as in other breeds. Both male and female are hornless.

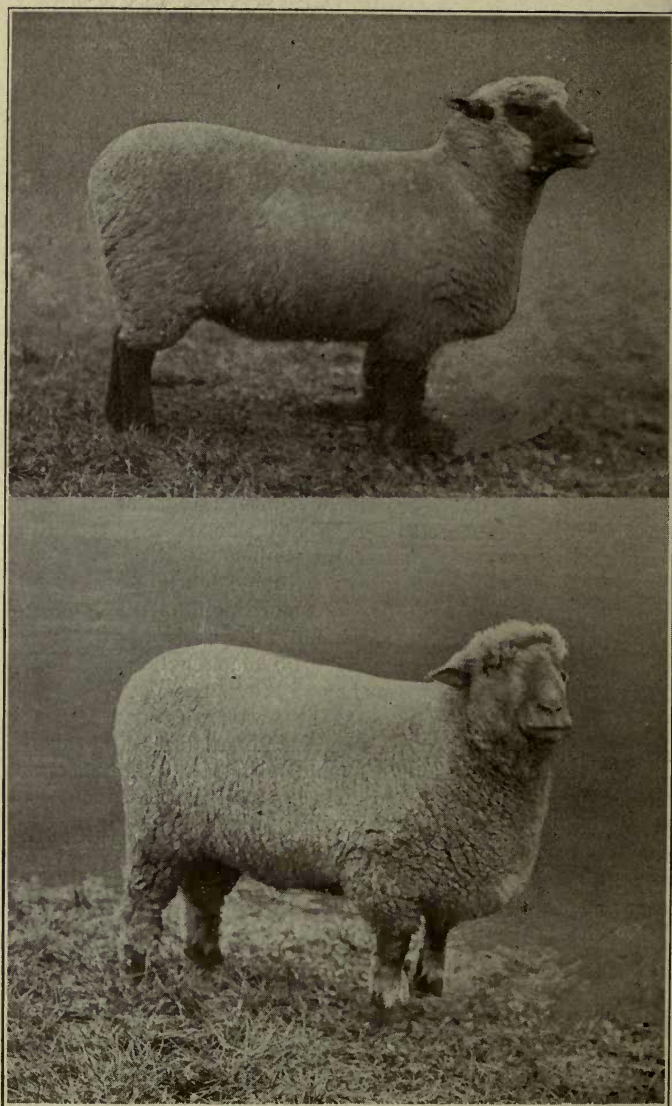


Fig. 40. Side view of Oxford Ewe and Ram.

**Scale of Points Adopted by the American Oxford Down
Breeders' Association—In Four Divisions.**

	Counts.
Breed type	30
Constitution	25
Mutton form and quality	30
Wool	15

Subdivision—Breed Type of Animals.

Form of a good general appearance, made by a well balanced conformation, free from coarseness in any part, and showing good style both at rest and in motion.....	15
Head of moderate length and width between the ears and between the eyes, and well covered with wool over poll and down to the eyes. Color of face an even dark gray or brown, either with or without gray spot on tip of nose.	6
When fully matured and in good condition rams should weigh 250 to 350 pounds; ewes, 180 to 275 pounds.....	5
Ears medium size, not too thick and of an even brown or dark gray color.....	2
Legs short, strong in bone, flat and of even dark gray or brown color, placed squarely under the body and well apart	2

Constitution.

Large around the heart and wide and full in the chest....	10
The movement must be bold and vigorous.....	5
Eyes bold, prominent and bright.....	4
Skin bright pink in color.....	3
Neck strong and muscular in rams and well set on in both sexes	3

Mutton Form and Quality.

Wide and straight on top of shoulder, back, loin and rump, from base of neck to tail.....	15
Full shoulders and thighs, well meated both inside and outside	5
Flanks well filled and strong so as to make the lower lines	

of the body as straight as possible, and the side lines straight or rather full.....	4
The whole carcass evenly covered with good, well marbled meat	6

Wool.

Fleece of moderate length, close and of even quality, cov- ering the whole carcass well, and free from black patches upon the body, neck or head.....	15
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LECTURE LIII.

HAMPSHIRE.

Origin, History, and Development.

The original Hampshires date back to the time when the Romans occupied Britain. It was, no doubt, these sheep that furnished wool for the factory which the Romans established at Winchester. Their home was in the counties of Hants, Berkshire, and Wiltshire.

These sheep are described as having a large, bony, narrow carcass. The head was large and possessed a prominent Roman nose. The face of the Hampshire sheep was white, while that of the Berkshire Knob and Welts was dark or speckled. All were horned with large, rough, curly horns. They were high at the withers, narrow and sharp ridged along the back. They were withal; the largest short-wooled sheep in existence. It must be said, too, that these sheep were active, vigorous, and possessed strong constitutions. They were fit subjects on which to effect improvement.

This improvement began about the beginning of the nineteenth century. The first move was to rid them of their horns and mark them with black faces and legs, and give them the desirable mutton form. To this end the breeders, of whom there were many, brought in the short-legged, broad-backed, thick-set, close-wooled Southdown rams, the very antitype of the Hampshires. This method was followed for a number of years, perhaps thirty to forty, with fair results, but owing to a lack of unity on the part of the breeders, there was a great diversity of types, and the end—uniformity—seemed yet far distant. It was not till 1845 that Mr. Humphrey came forward with time and money to spend in the interests of this breed, which he thought gave promise of good things for the farmers of south central England. Mr. Humphrey did for the

Hampshires what Ellman and Webb did for the Southdowns and Bakewell for the Leicesters. He gave them a fixed type and made them one of the most profitable kinds of sheep.

He procured Southdown rams of Webb breeding and crossed them on Hampshire ewes, being careful in both cases to make such crosses as would bring about the desired results, and then by judicious selection and further crossing he was able to bring out in a few years the Hampshire of today, a sheep large in size, of the true mutton form, and at the same time bearing a fair-sized, medium length fleece of good quality wool. Other breeders have followed after Mr. Humphrey's example and have maintained the admirable qualities of the Hampshire, striving at all times to improve its form, wool and prolificacy.

In the improvement of the Hampshires as well as that of Leicesters and other breeds the element of feed must not be forgotten. During the period in which this was being effected the down lands were enclosed and put under cultivation. Large quantities of rape, rutabagas, mangels, sanfoin and other crops, such as rye and vetches, were raised. These afforded excellent food for sheep and did much in increasing the flesh producing qualities of the flocks of the Downs.

Besides occupying a prominent place in the counties of southern England the Hampshire has been distributed in fair numbers over a number of the states of the Union and Ontario and Quebec, provinces in Canada. Before the Civil War they were brought to Virginia, but during the strife from '61 to '65 the flocks there were scattered and many of their descendants may now be found in the hills. New York, Michigan, Pennsylvania, and Ohio farmers possess these sheep in the largest numbers. In 1889 the Hampshire Down Breeders' Association of America was formed to look after the interests of the breed, and in 1890 the Hampshire Down Flock Record was first issued.

The Hampshire Downs are large in size, being second only to the Oxfords of the Down breeds. They are very early maturing and because of this they are valuable for early lamb production. They give excellent results in crossing on ewes of a small, compact nature. They are good milkers and so feed their lambs well, and as good milking qualities and prolificacy go together, it may be claimed for them that they yield a high average percentage of lambs.

LECTURE LIV.

HAMPSHIRE.

Points to Be Observed in the Judging and Selection of the Same.

In this, as in other breeds, the ram should show masculinity and strong constitution. The head, though large, should not be what we term coarse, but should show refinement. Every trace of horns should be absent. Black or dark brown head and legs are looked for. The ears are rather long, thin, and more pointed than that of the Southdown, and dark brown or black in color, rather mouse colored on the back side. The eyes must be similar to the Southdown. The neck tapers gradually from the body, and is set rather high up. Make sure that there is no prominence to the shoulders. The back ought to possess width and straightness and be evenly and well covered with firm flesh. In other words, the body of the Hampshire should be that of the mutton sheep. The body should be well covered with wool. Make sure that the belly has a good covering and the legs down to the knees. The wool is not quite so compact as is that of the Southdown. The fleece should be free from black wool. Look for this on the forehead.

The Ewe. The ewe must possess the breed markings and at the same time give evidence of femininity. Both sexes should show all the evidences of strong constitution as outlined in previous lectures—wide nostrils, broad, full chest and brisket, and full heart girth.

**Standard of Excellence Adopted by American Hampshire
Down Sheep Breeders' Association, Vol. 1, 1890.**

Head. Moderately large, but not coarse; well covered with wool on forehead and cheeks.

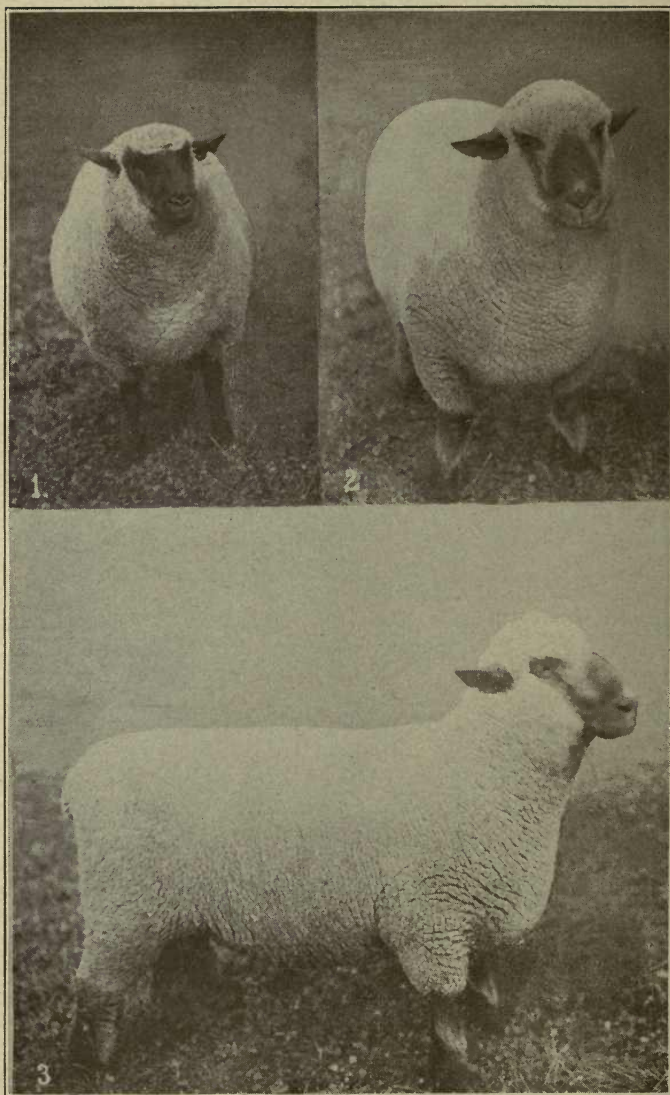


Fig. 41. Hampshires.

1. Front view of Hampshire ewe. 2. Front view of Hampshire ram lamb.
3. Side view of Hampshire ram.

Nostrils. Wide.

Color. Head and legs, dark brown or black.

Eyes. Prominent and lustrous.

Legs. Well under outside of body, straight with good size of bone, black.

Neck. A regular taper from shoulders to head, without any hollow in front of shoulders, set high up on body.

Shoulders. Sloping, full, and not higher than the line of back and neck.

Chest. Deep and full in the heart place, with breast prominent and full.

Back. Straight with full spring of rib.

Loin. Wide and straight, without depression in front of hips.

Quarters. Long from hips to rump, without sloping, and deep in thigh. Broad in hips and rump, with fullhams. Inside of thighs full.

Scale of Points.

	Counts.
Head. Size and shape, 5; ears and eyes, 3; color, 5; legs and feet, 2.....	15
Neck, Shoulders and Breast. Neck, 5; shoulders, 10; chest and breast, 15.....	30
Body. Back and loin, 15; rib, 5.....	20
Quarters. Length, 10; width, 10; twist, 5.....	25
Wool. Forehead and cheeks, 2; belly, well covered, 3; quality, 5	10
Total	100

LECTURE LV.

SOUTHDOWNS.

Origin, History, and Development.

A long line of chalk hills runs northwest and southwest from Dorchester to Norfolk. A spur of these hills shoots off into Sussex with a length of sixty miles and a breadth of six to seven. These hills are designated the Southdowns to distinguish them from a similar formation a little to the north running parallel and terminating on the east at Dover. The Southdown hills from time immemorial have been the home of a breed of sheep long called after the hills, the Southdowns.

The Southdowns are the purest breed of sheep known. So far as can be ascertained there is no reason to believe that any foreign blood has been resorted to in their development. Their improvement has been affected by careful breeding, selection, and feeding and management.

When Arthur Young first saw them in 1788, before improvements had begun under Mr. Ellman, he describes them as follows: "The true Southdown, when very well bred, have the following points: no horns, a long speckled face, clean and thin jaws, a long but not a thin neck, no tuft of wool on the forehead, which they call owl-headed; not any frize of wool on the cheeks; thick in the shoulder, open-breasted, and deep; both fore and hind legs stand wide; round and straight in the barrel; wide upon the loin and hips; shut well in the twist, which is a projection of flesh on the inner part of the thigh, that gives a fullness when viewed behind, and makes a Southdown leg of mutton remarkably round and short, more so than in most other breeds; thin speckled legs,

and free from wool; the belly full of wool; the wool close and hard to the feel, curdled to the eye, and free from projecting or strong fibers. Those flocks not bred with particular care and attention are apt to be coarse-wooled in the back, but some are fine all over; weigh fat from 12 pounds to 15 pounds a quarter."

Mr. Ellman, of Glynde, Sussex, took hold of the Southdown along the latter part of the eighteenth century. He fixed in his mind an ideal form and fashioned his flock after his model. He may be said to occupy the same place in regard to the Southdown as that held by Bakewell in the development of the Leicester. He saw in his Southdowns a good strong constitution. Without constitution the breeder can do nothing. They were vigorous, active sheep with good leg of mutton development. How successful was Mr. Ellman in his enterprise may be judged from his own description of the Southdown sheep as quoted by Yonatti: "The head small and hornless; the face speckled or grey, and neither too long nor too short; the lips thin, and the space between the nose and the eyes narrow; the under jaw or chap fine and thin; the ears are tolerably wide and well covered with wool, and the forehead also, and the whole space between the ears well protected by it as a defense against the fly; the eye full and bright, but not prominent; the neck of medium length, thin towards the head, but enlarging towards the shoulders, where it should be broad and high, and straight in its whole course above and below. The breast should be wide, deep, and projecting forwards between the forelegs, indicating a good constitution, and a disposition to thrive. Corresponding with this the shoulders should be level with the back, and not too wide above; they should bow outward from the top to the breast, indicating a springing rib beneath, and leaving room for it, the ribs coming out horizontally from the spine, and extending far backward, and the last rib proejecting more than the others; the back flat from the shoulders to the setting on of the tail; the loin broad and flat; the rump long and broad, and the tail set on high, and nearly on a level with the spine. The hips wide, and the space between them and the last rib on either side as narrow as possible, and the ribs, generally speaking, presenting a circular form like a barrel. The belly as straight as the back; the legs neither too long nor too short. The fore legs straight from the breast

to the foot, not bending inward at the knee, and standing far apart both before and behind; the hocks having a direction rather outward, and the twist, or the meeting of the thighs behind, being particularly full. The bones fine, yet having no appearance of weakness, and of a speckled or dark color. The belly well defended with wool, and the wool coming down before and behind to the knee and to the hock; the wool short, close, curled, and fine, and free from spiry projecting fibers."

This wonderful transformation came about not alone through careful breeding, but combined with it was feeding and management. His flocks roamed about over the thinly clad hillsides and maintained themselves on the sweet, scanty herbage of the Downs. About this time root crops were introduced, and these afforded an excellent addition to the ration for growing sheep. To feeding as much as to breeding may be accredited the improvement of these hardy sheep. The Southdowns are very pretty sheep, and have been largely patronized by royalty. Once when Mr. Ellman was showing in Paris, Napoleon III., noticing his sheep, said: "Whose sheep are those?" "Yours," said Ellman, and he gave the flock to the emperor. King George III. of England had his Southdown flocks, and so had many an English lord, among whom were Lord Walsingham and the Dukes of Richmond and Gordon and Hamilton, and the Prince of Wales himself.

Through the Southdown all the other down breeds have been improved. The Hampshires, Oxfords, and Shropshires all owe to them their beautiful compact forms that have made them so useful as mutton sheep.

Whenever the Southdown has gone he has wrought improvement. Especially is he valuable in crossing upon the Lincoln. He is essentially a mutton sheep, as the following description of Professor Coleman's would indicate: "The Sussex Down is noticeable for the light shade of feature, profusion of wool on forehead and on sides of face, short head, flat forehead, large, full projecting eye, fine nose and muzzle, short neck, level contour, great leg-of-mutton, barrel-shaped carcass, level underlines, fine bone, and fine close wool."

Following Mr. Ellman was Jonas Webb, of Babrahan, Cambridge, who commenced operations about the year 1823. It is believed that this breeder visited Glynde and other noted Sussex farms when making selections for his foundation

flock, which grew to be by far the most valuable collection in the country. His flock became the source from whence all the best flocks were invigorated. Among the many other breeders who deserve mention is Mr. Rigdon, of Hove, Brighton, who did excellent work in improving the early Sussex sheep, as the Southdowns were sometimes called.

It is believed that Southdowns were brought to this country by the early New England settlers. Governor Winthrop brought over some ewes in 1648. In 1688 John Clayton, of Virginia, writes about them and praises their mutton qualities. In 1803 A. W. Rose imported a small flock of Southdowns to Fayette, N. Y. Later on, in 1824-1828, importations were made to Pennsylvania and New York by Powell and Rotch. These were supposed to have come from the Ellman flock of England. Later on Samuel Thorn and L. G. Morris, both of New York, made large importations, and in 1863 Thorne's flock counted descendants from fourteen different importations, principally from the flock of Jonas Webb, of Babraham, Cambridge. Importations were also made to Illinois and Kentucky. John Wentworth, of Chicago, by careful selection and management, established a flock which became the source to which American breeders looked for invigorating blood. In 1882 the American Southdown Breeders' Association was organized at Springfield, Illinois, for the purpose of collecting, revising, preserving and publishing the history and pedigrees of pure-bred Southdown sheep. It has been the aim of this association to encourage and aid breeders of Southdown sheep, taking care that none but worthy claims should be advanced to their credit, and also that none but worthy sheep should be recorded.

LECTURE LVI.

SOUTHDOWNS.

Points to Be Observed in the Judging and Selection of the Same.

The Southdown is a low down, smooth, compact, symmetrical little sheep, and may be looked upon as the ideal mutton form. The head is short and broad with clearly defined lineaments. The face of the ewe is slightly dished, while that of the ram is fuller with slightly Roman nose. The forehead and cheeks are wooled, but wool does not meet below the eyes. The face, ears and legs are some shade of brown bordering on a grayish fawn. The eyes should be bright and full, but not prominent as is the case with the Leicester. The ears are short, small and pointed. The neck is short, thick, straight, and smoothly blended with shoulder. The chest should be deep, broad and full and let down between the short, strong, straight, clean-boned front legs. A strong, straight, broad back, loin and rump are characteristic of the Southdown. Look also for a well sprung fore rib and well filled chine. The twist is low down and full. The fleece is not noted for its length. It is known as a short combing wool. It is dense and elastic to the touch and should cover the whole body and legs down to knees and hocks. It should be uniform in quality and length in all parts.

Scale of Points as Adopted by American Southdown Breeders' Association.

	Counts.
Head. Medium in size and hornless, fine, carried well up, forehead or face well covered with wool, especially between the ears and on the cheeks, and in the ewe slightly dished	5
Lips and Under Jaw. Fine and thin.....	1

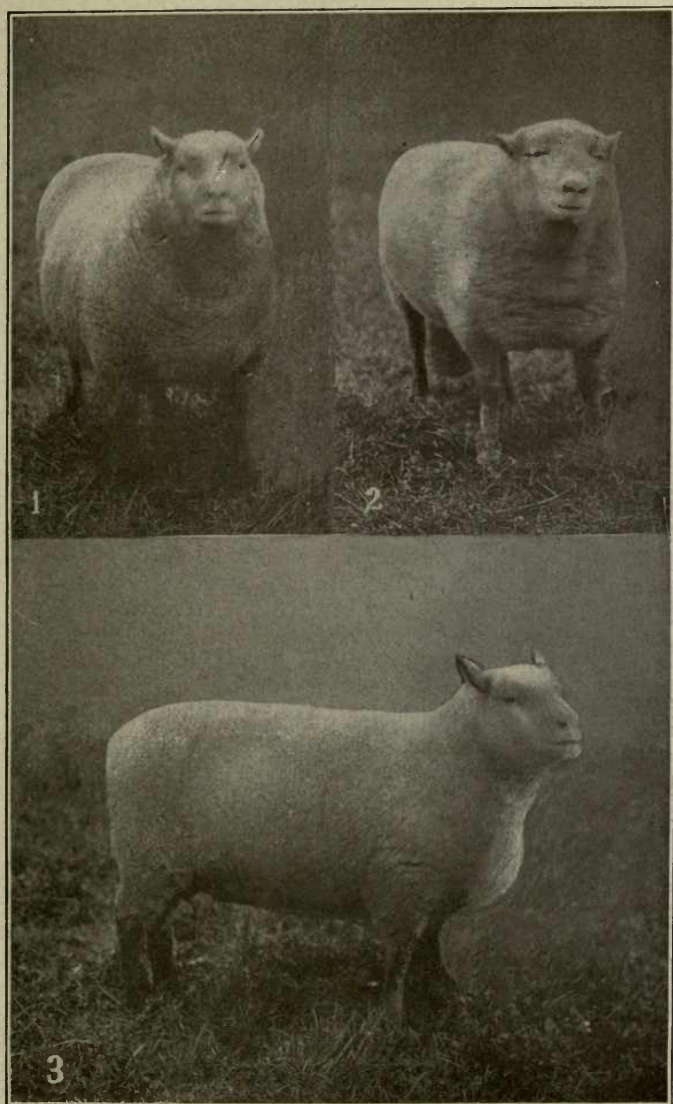


Fig. 42. Southdowns.

1. Front view of Southdown ewe. 2. Front view of Southdown ram.
3. Side view of Southdown ram.

Ears. Rather small, tolerably wide apart, covered with fine hair and carried with a lively back and forth movement	2
Eyes. Full and bright.....	3
Face. A uniform tint of brown, or gray, or mouse color...	3
Neck. Short, fine at the head, but nicely tapering, and broad and straight on top at the shoulders.....	4
Shoulders. Broad and full, smoothly joining the neck with the back	5
Breast. Wide, deep and projecting well forward, the fore-legs standing well apart.....	5
Back and Loin. Broad and straight from shoulders to rump	7
Ribs. Well arched, extending far backward, the last projecting more than the others.....	6
Rump. Broad, square and full, with tail well set up.....	6
Hips. Wide, with little space between them and the last ribs	6
Thighs. Full and well let down in twist, the legs standing well apart.....	6
Limbs. Short and fine in bone, and in color to agree with face	3
Fore Legs. Well woolled and carrying mutton to the knees, but free from meat below.....	2
Hind Legs. Well filled with mutton and woolled to the hocks, neat and clean below.....	2
Belly. Straight and well covered with wool, the flank extending so as to form a line parallel with the back or top line	5
Fleece. Compact, the whole body well covered with moderately long and close wool, white in color, carrying some yolk	12
Form. Throughout smooth and symmetrical, with no coarseness in any part.....	9
General Appearance. Spirited and attractive, with a determined look, a proud and firm step, indicating constitutional vigor and thorough breeding.....	8
Total	100

LECTURE XVII

LEICESTERS.

Origin, History, and Development.

The Leicester belongs to the long-wooled class of sheep, along with the Lincoln and Cotswold, all of which are of English origin. It is not because it belongs to this class that we study it before all others, nor is it because this breed can claim priority in point of age over others, but it is because of the improvement that has been effected by means of it upon almost all other breeds and because it is the result of the pioneer work of Bakewell in animal breeding.

All students are interested in pioneer work. Who has not read with interest the story of pioneer days in the central west? So it is that we turn with interest and not without profit to the pioneer work of Robt. Bakewell, whose genius and foresight enabled him to plan and carry out the improvement of the cart-horse, beef cattle and mutton sheep to the benefit of not only himself, but of his country and all other countries engaged in the breeding and rearing of live stock.

Robert Bakewell was a farmer, whose home was at Dishley, in Leicestershire, a county in about the central part of England, where the raising and feeding of live stock was the principal occupation of his co-workers. He early conceived the idea that the sheep, horses, and cattle of that district could be improved so as to serve the purposes of the farmers to a much greater extent than they were doing at that time, and it was with this end in view that he began his operation with Leicester sheep in the year of 1755. Very little is known regarding his methods, but this much is known: that the merit of his work consisted in his realizing the fact that the properties of parents may be transmitted to their offspring until a type is fixed; also in his power of discerning by an animal's external form and quality that it possessed the

properties he desired to perpetuate. His aim was to produce a breed of sheep with the aptitude to lay on a large amount of fat in the desirable places in the shortest time, at a minimum of cost. His genius displayed itself in accomplishing this in that he was able to discern the correlation between the symmetry of form he desired and aptitude to fatten—in other words, utility of form.

The sheep with which he worked were those of his own country, Leicestershire. History says in describing the sheep of these midland counties that in 1688 there existed in Worcestershire, in many parts of Warwickshire, all Leicestershire, Buckinghamshire, part of Northamptonshire, and part of Nottinghamshire, a breed of sheep large-boned, of the best shape, and deepest staple, chiefly pasture sheep with wool coarser than the Cotswold. As stated above, the chief points which Bakewell wished to emphasize were beauty of form, utility of form, aptitude to fatten, and early maturity. He overlooked the fleece almost entirely, his reason being that a large fleece and aptitude to fatten were properties not often found in the same animals. Besides, from his observation he associated a heavy fleece with coarse bone and large amount of offal. Quality he sought, rather than size. It is thought that Bakewell resorted to no other breed in his work of improvement, but did his work solely by selection, ever keeping in mind the type which he sought to fix in his improved breed. This, of necessity, would lead to inbreeding, and this of itself would result in a reduction of size, finer bone, with less offal, and, as he was entirely careless as regards wool covering, a lighter fleece. His methods were practically a secret, but it was discovered by a neighbor breeder when visiting him on different occasions that he had in his stables a **black** ram of unusually good character after the type which Bakewell wished to develop and establish. It is thought that even yet the blood of this black ram shows itself even in the purest bred flocks in the form of small black spots about the head and on other parts of the body. "An ideal type." "Like begets like." "Breed the best to the best." "Selection." These were Bakewell's laws so far as we can interpret them, and these are the laws which prevail today among the most advanced students of the Science and Art of Animal Breeding.

In 1760 he began the practice of ram letting. This was

ridiculed by many of his neighbors and looked at first as if it were going to be unpopular. The first ram being hired to Mr. Wilmore of Illston-on-the-Hill for 17s 6d. Bakewell's persistence and foresight, so characteristic of him and so necessary to the successful breeder, are in evidence here, for he kept on with the system he had inaugurated, and in 1780 he realized 10 guineas for the service of a ram for a season. His fame was extending and also that of the improved Leicester till 1784 and 1785 he obtained as high as 100 guineas for the use of a ram. In 1790 Bakewell organized the Dishley Ram Club with a membership of twelve men. The rules governing them in regard to use, sales, showing, etc., were very strict as viewed from today, but it seems were necessary at that time to protect the Leicester breeders from their rivals, the Lincoln breeders, who had a similar society and were governed by similar laws.

Many valuable flocks sprang from the Dishley flock, the most famous of which were the Alesby and Holmepierrepont flocks, the latter being the property of Joe and Robert Burgess, who received them from their uncle, Mr. Studens. In 1834 Mr. Sanday, sr., succeeded Joe at Holmepierrepont and was very successful with his sheep in the show ring between the years 1847 and 1863. Sir Falton Sykes never showed but he succeeded in getting together a valuable flock. His aim, like that of his great predecessor, was quality. He liked small thrifty sheep, believing them best adapted for his wold country. He never allowed his sheep to be overfed or artificially fed, and consequently made no great winnings on them, but after his death honors came to them in show yard in the hands of Mr. Borton of Malton and Lord Barners.

Not only are the Leicestershores valuable as a breed in themselves, but also for the improvement which they have effected on nearly every other English and Scotch breed. They were early introduced into Scotland, where several pure-breeds had been established about the border. Through them the Cheviots and Blackfaces have been in many cases improved into highly valuable sheep. A cross of Leicester ram on Cheviot ewe gives the famous "Barmshires," peculiar to the border counties of Roxburghshire, Berwickshire and Northumberland. These ewes are hardy, with good size and aptitude, feed, and when crossed with a Shropshire ram give good results.

Yorkshire has both pure Leicesters and a cross with Lincoln which gives size and wool.

On the moors, what are called "mug Leicesters" are kept—hardy, long-legged, well adapted to run with the black faced ewes. The produce are known as "Masham" lambs. They are well adapted to feed on the poor pasture of the moors in Yorkshire and midland counties, when during the next summer they are made fat and produce from five to seven pounds of wool.

Lincolns are said to owe their present popularity to Leicester cross. Shropshires have acquired much of their aptitude to fatten from Leicester cross introduced by Mr. Meire.

A cross of Leicester on both Southdown and Hampshire gives a very muttoney sheep.

Border Leicesters. In 1762 Mr. Culley introduced Mr. Bakewell's improved stock into the border counties and was soon followed by many other gentlemen. As to whether these breeders kept their Leicesters pure or introduced Cheviot blood into their flocks, it is difficult to say, but one thing is certain: that they evolved a breed somewhat different from the Bakewell parent stock. The distinguishing features between the improved Leicesters of Bakewell and the Border Leicesters are that the Bakewell Leicesters have bluish white faces and a tuftiness on the legs, while the Border Leicesters are white and clean on both and are rather more upstanding.

The Leicesters are especially adapted to districts where good, rich pastures are afforded, and have become valuable also in grading up the common stock of the country. In Scotland many of the breeders keep a flock of pure Leicesters on their lowland farms and a flock of mixed Leicesters on Cheviot ewes to pasture the barer hills, while a cross on the hardy black faces gives a muttoney sheep that gives excellent results on the scantiest pastures.

Bakewell's methods, as outlined above, produced a breed of sheep with many valuable points, but possessing a few points of weakness, which were a lack of wool covering on the belly, a certain delicacy of constitution, and want of sufficient hardiness to withstand exposure and endure hardship; also inferior ability to nurse the lambs. These points have been understood by modern breeders, and their efforts have been constantly directed to improvement along these lines, not without marked success.

LECTURE LVIII.

LEICESTERS.

Points to Be Observed in the Judging and Selection of the Same.

The Leicester, as developed by Bakewell and his successors, the Tulleys, Studens, Burgess brothers, Lord Berners, Lord Portland, and many others, is a beautiful sheep with white face and legs, a neat head and neck, a squarely shaped body covered with long fine wool with curled tips.

In judging the Leicester the following points must be observed:

The head is long, slim and bare of wool and hornless, with rather wide forehead. The ears long, slim, fine, pointed back except when the sheep's attention is arrested. The face tapering to muzzle. The nose is somewhat Roman, the face and forehead are covered with fine, short, white hair; the eye is prominent and placid. The neck, broad and deep at junction with head and level with line of back.

The shoulders should be broad and smoothly rounded on top, well covered with flesh well down on shank. Narrow, pointed shoulders are sure to be accompanied with deficient heart girth and spring of fore-ribs.

The breast should be prominent, with deep chest and wide spring of fore-ribs, giving a large heart girth. This is one of the most important points to consider in breeding sheep or sheep intended for fattening purposes. With small chest capacity the vital organs, heart and lungs, must of necessity be small and crowded and their work will be impaired. Large heart room indicates a large heart, and this indicates a large supply of blood in the breeding animal to nourish the foetus;



Fig. 43. Leicesters.
Side views of Leicester ewe and ram.

in the feeding animal to furnish the digestive organs with nutrients and thus promote digestion and assimilation of food. The judge of sheep or any other class of live stock cannot afford to overlook constitution as indicated by heart girth.

The back of the Leicester is strong and straight and broad, as it should possess a wide spring of rib, thus affording ample room for carrying a large proportion of valuable rib meat. The loin is broad and both back and loin are evenly and deeply covered with flesh. The hips are full, but run rather narrow at tail head, which is usually elongated. The neck and back should form a straight line. The body should be deep and thick, with long ribs and straight underline, and well covered underneath. This is important, as it is another indication of hardness to withstand exposure. The hindquarters should be full, well muscled inside and outside, with flesh well carried down to hock joint, thus giving a good leg of mutton, the most valuable cut in the sheep.

The legs should be strong, clean, and fine in bone, bare of wool, but covered with hair similar to that on face.

The whole body should be covered with a fleece of long wool 7 to 12 inches. The judge should pay especial attention to the back, where fleece of Leicester is sometimes weak, and to belly covering.

The skin is a beautiful pink color.

In handling the Leicester, the covering of the back should be noted, as this breed is disposed to lay on large quantities of fat instead of muscle. Other things being equal, the sheep laying on flesh should have the preference over the one laying on fat.

Special Points in Judging Leicester Ram. In selecting a ram to put at the head of a flock, it is all-important that he have a good pedigree, and when buying this can be furnished by the seller, but in showing resort cannot be had to this evidence of merit. The judge must use the evidence as shown by the individual.

The ram should have a masculine appearance. His head should indicate at once that he is a male, and there should be that strength about it that would mark him as a leader; as one that could defend his flock. There is a certain strength and burliness which indicates character. He should exhibit a docile nature, yet a fearless one. His forehead should be wide and rather prominent, with more fullness between the

ears than is seen in a ewe. His neck should be strong, with well developed scrag. In fact, his whole front should be well developed and possess that strength characteristic of a male in any class of animals. His back, loin and spring of rib, depth of body, and leg-of-mutton, and wealth of wool covering should be those of the breed, emphasized. In examining him the judge should pay special attention to his hind legs and pasterns. A ram with broken down pasterns is practically useless and should not be given a place in a show ring.

Look as well at his mouth to ascertain if the jaws match. An overshot or undershot mouth are properties that are transmissible from parent to offspring; especially is this likely to occur when these defects are possessed by the sire.

Feel the throat carefully to make sure that there is no trace of goitre.

Finally, make sure that a ram to which you give a place is entire. A ram with but one testicle should be turned down.

Ewes. They should possess the characteristics of the breed as described above. Unlike the ram, they should be feminine in appearance, with strong evidences of vigor and constitution and quality, as indicated by bright, prominent eye, deep, wide chest, and prominent breast, good wool covering, pink skin, strong, clean bone. The ewes should possess good, strong, deep middles, with wide hindquarters, as these indicate room for foetal development.

It should be borne in mind by the judge that Leicester ewes are apt to lay on large quantities of fat along the back, and this is very likely to run down the side and gather around the front flank, and a sheep possessing this character is said to have "slipped." This condition in either a breeding or fat ewe is most undesirable and should depreciate the value of such a one in the eye of the judge.

LECTURE LIX.

COTSWOLDS.

Origin, History, and Development.

Unlike the Leicester and other large bodied, long wooled sheep whose home was in the lower lands of the midland counties, the Cotswolds are natives of a range of hills that run through the eastern part of Gloucestershire in a direction from southwest to northeast. Their name is derived from two words—the first, cote, which dates back to the times of David and Hezekiah, and means a long, low building for the purpose of affording shelter to the flocks; and wold, meaning a naked hillside. It is from these sheep that the hills take their name, Cotswold Hills.

As to the origin of these sheep, it is not known. But it is safe to say that previous to the Roman conquest there were no sheep in Briton. As has been stated in a previous lecture, it is altogether probable that with the Roman systems of tillage and drainage and protection afforded, sheep were imported into Briton and multiplied in great numbers. Goding says that during the Saxon Heptarchy, when royalty visited Gloucester the cottagers presented the king and nobles with clothing of their own manufacture. Woolen mills were in evidence at a very early date in Cirencester and Winchester.

These sheep inhabited the Cotswold Hills in large numbers. They were large, coarse bodied sheep with rather long legs, well adapted to hurrying about on the thin soiled hillsides in search of the sweet, scanty herbage that furnished them nourishment. They very early became noted for their fleeces of long, fine wool, which was a little coarser than the Leicester, but finer than the Ryeland wool, two breeds whose homes bordered on that of the Cotswold's.

English wool produced in the Cotswold country became so famous that the King of Portugal, about the beginning of the fifteenth century, sent to the King of England for sixty fleeces of Cotswold wool, with which he wished to manufacture certain cloths of gold at Florence for his own private use. Both wool and sheep were exported to such an extent that in 1425 an act was passed at the instigation of Henry VI. prohibiting the exportation of both sheep and wool. In 1468 Edward IV. of England presented John of Aragon with twenty Cotswold ewes. Again, in the reign of Elizabeth, these same sheep are described as being noted for their strong bone and long wool. At first, their wool was manufactured into a coarse cloth at Cirencester and Winchester, where fulling mills had been established. Later on finer sorts were necessary, since by more careful management the wool had become longer and stronger. Better systems of cultivation were introduced and the down land was broken up and put under crop, and in consequence the sheep were kept in smaller pastures. Sheep are creatures of environment, and it is not unlikely that the Cotswold had their forms somewhat modified at this time. It is also stated that many of the Cotswold breeders went over into Leicestershire and procured rams of Bakewell breeding with which to head their flocks. The result of this infusion of Leicester blood was not so much marked in changing the form of the Cotswolds as it was in giving to them the qualities of putting on flesh and early maturity, both of which are essential in a mutton sheep. Pure-bred Leicesters disappeared from the Cotswold hills, but not without leaving the Cotswold more symmetrical, early maturing, and improved in weight. About this time also the raising and feeding of turnips to sheep became common; and to feed as well as to careful breeding may be due much of the improvement affected in the Cotswolds.

The early breeders were enterprising farmers, and through the success achieved at the Royal and other agricultural shows, brought their breed into such prominence that Cotswold sheep were much sought after. Finally the excellence of their breed as mutton and wool producers was so widely known that it became unnecessary for the breeders to show. This they deemed a good thing, as they felt that many of their best animals had been injured for breeding purposes by being put into show ring condition. Mr. Hewer was one of the most

noted improvers of the breed. Among other breeders of Cotswold sheep Mr. M. Lane of Broadfield was usually successful in winning prizes on his ewes. The Messrs. Garnes were also producers of good show sheep. Another prize winner was a Mr. J. King Tombs, who bred largely from the Garnes and Lane blood. Good sheep have also been shown from Oxfordshire and prizes have gone to Mr. Brown in Norfolk County.

The thin soil on the limestone hills of Gloucestershire is, as we have said, especially adapted to the rearing of large, strong, healthy sheep, and it is to these hills that the lowland breeders resort for improvement of blood. The Cotswold is the largest of the known breeds of sheep with long, rather coarse wool and flesh of coarse grain. The average fleece weighs about 9 1-3 pounds, though some have gone as high as 14 pounds.

The Cotswolds are good not only as a breed in themselves; they have been instrumental in affecting improvement in other breeds, as in Wales, Hereford, and Monmouth. At stated periods a sale of rams takes place at Cirencester, where the rams are auctioned off to the highest bidder. Some breeders still hold sales at their own farms. The practice of ram letting, as was followed by Bakewell and other Leicester breeders, has not been practiced to any extent by the breeders of Cotswolds. It may be said in conclusion that, although there appears to have been an introduction of Leicester blood into the Cotswold, at one time, for upwards of three-quarters of a century the Cotswolds have been bred pure and are a distinct breed of sheep, as are the Oxfords, Shropshires, or Leicesters themselves.

LECTURE LX.

COTSWOLDS.

Points to Be Observed in the Judging and Selection of the Same.

The Cotswold is one of the very large breeds of sheep. It should present to the judge a lively, stylish appearance, as it is a rather upstanding sheep, carrying its head and neck much more erect than does either the Leicester or Lincoln.

So far as mutton form is concerned, the type is the same as that which we have already outlined for Leicesters. That is, the back should be straight and strong. The ribs well sprung, giving a broad top, and long so as to provide a low deep body. A wide loin and wide level hips with rump carried on a level with back. The leg-of-mutton, like that of other mutton breeds, should be well filled and carried down to hock. The deep, low set body should be set rather on the inside of short, strong legs, with straight pasterns and hocks that are carried well apart.

There are, however, very marked points which characterize the Cotswold sheep and serve to distinguish it from all other breeds, especially is this true of its head and front parts. The head is rather long and wedge shaped, with good width between the eyes. It's not short and thick as in some other breeds. A Roman nose is not desirable, though enough to give a masculine appearance to the ram is not an objection. The eye should be prominent and bright. The lips and a ring around the eye are black. The face is white or slightly mixed with gray, or white dappled with brown. It was this sort of ram that was found of great service in crossing with the Hampshire to produce the Oxfordshire sheep.

The ears are long, broad and thin, and are covered with short hair. On top of the head is a tuft or covering of long

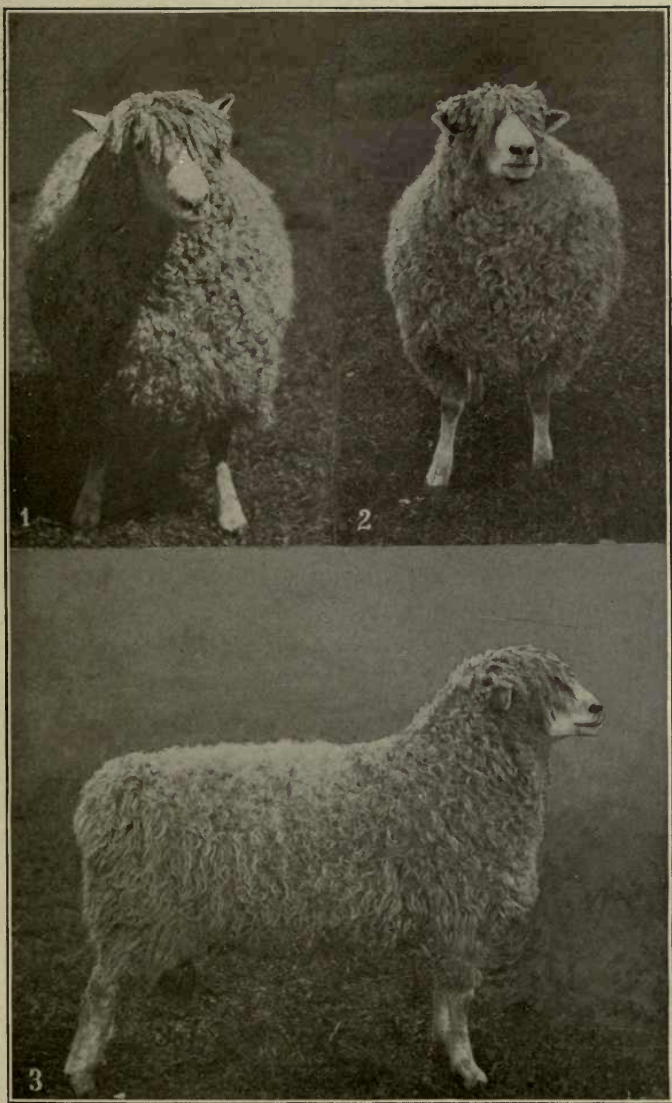


Fig. 44 Cotswolds.

1. Front view of Cotswold ewe. 2. Front view of Cotswold ram. 3. Side view of Cotswold ram.

lustrous wool, streaming down over the eyes and face. The neck is held more erect, carrying the head high and giving the Cotswold an appearance of grandeur. It is neatly joined with the head, gradually swelling until it blends evenly with the shoulder. The brisket should be broad and full, giving it a prominent appearance.

The whole body should be covered with long, lustrous wool which separates into locks that fall apart, showing a beautiful pink skin. Legs should be covered with wool to the fetlocks. It may be mixed with gray as on the face.

As was observed in the lecture on the Judging of Breeding Sheep, the ram must show a masculine appearance, while the ewe must present a feminine character.

When starting a flock or selecting a sire to head a flock it is all-important that the animals be true to type, vigorous, and strong in constitution. A breeding sheep without constitution is a worse than useless investment.

Standard of Excellence and Scale of Points Adopted by American Cotswold Association, Vol. V., 1892.

Ewes.

	Counts.
Head. Moderately fine, broad between the eyes and nostrils, but without a short, thick appearance, and well covered on crown with long, lustrous wool.....	8
Face. Either white or slightly mixed with gray, or white dappled with brown.....	4
Nostrils. Wide and expanded. Nose dark.....	1
Eyes. Prominent, but mild looking.....	2
Ears. Broad, long, moderately thin and covered with short hair	4
Collar. Full from breast and shoulders, tapering gradually all the way to where the neck and head join; neck should be fine and graceful and free from coarse and loose skin.	5
Shoulders. Broad and full, and at the same time joined so gradually to the collar forward and chine backward as not to leave the least hollow in either place.....	8
Fore Legs. The mutton on the arm, or fore thigh, should come quite to the knee. Leg upright with heavy bone, being clear from superfluous skin, with wool to fetlock and may be mixed with gray.....	4

Breast. Broad and well forward, keeping the legs wide apart. Girth and chest full and deep.....	10
Fore Flank. Quite full, not showing hollow behind the shoulder	4
Back and Loin. Broad, flat and straight, from which the ribs must spring, with a fine circular arch.....	12
Belly. Straight on underline.....	5
Quarters. Long and full, with mutton quite down to the hock	8
Twist. Or junction inside of thighs deep, wide and full, which with a broad breast will keep the legs open and upright	5
Hock. Should stand neither in nor out.....	2
Fleece. The whole body should be covered with long, lustrous wool	18
Total	100

Rams.

Counts.

Head. Not too fine, moderately small, and broad between the eyes and nostrils, but without a short, thick appearance, and in young animals well covered on crown with long, lustrous wool.....	8
Face. Either white or slightly mixed with gray, or white dappled with brown.....	4
Nostrils. Wide and expanded. Nose dark.....	1
Eyes. Prominent, but mild looking.....	2
Ears. Broad, long, moderately thin and covered with short hair	4
Collar. Full from breast and shoulders, tapering gradually all the way to where the neck and head join. The neck should be short, thick and strong, indicating constitutional vigor, and free from coarse and loose skin.....	6
Shoulders. Broad and full, and at the same time joined so gradually to the collar forward and chine backward as not to leave the least hollow in either place.....	8
Fore Legs. The mutton on the arm, or fore thigh, should come quite to the knee. Leg upright with heavy bone, being clear from superfluous skin, with wool to fetlock and may be mixed with gray.....	4

Breast. Broad and well forward, keeping the legs wide apart. Girth and chest full and deep.....	10
Fore Flank. Quite full, not showing hollow behind the shoulder	5
Back and Loin. Broad, flat and straight, from which the ribs must spring, with a fine circular arch.....	12
Belly. Straight on underline.....	3
Quarters. Long and full, with mutton quite down to the hock	8
Twist. Or junction inside of thighs deep, wide and full, which with a broad breast will keep the legs open and upright	5
Hock. Should stand neither in nor out.....	2
Fleece. The whole body should be covered with long, lustrous wool	18
Total	100

LECTURE LXI.

LINCOLNS.

Origin, History, and Development.

The Lincoln is another of the long-wooled breeds of English sheep. It is at the present time, without doubt, the largest known breed in the world. From its earliest history and even at the present time it is noted for its large fleece of very long wool. As a mutton sheep, too, so far as quantity is concerned, it has few, if any, equals.

A little more than a hundred years ago, according to Milburn's description, the typical Lincoln sheep was as follows: They had large, coarse carcasses, the length from head to tail being, in some cases, 4 feet 7 inches. The ribs were flattish, and not covered very thickly with flesh; the belly deep, and the shoulders so forward as almost to hide the breast; the neck thick and large, with a deep and flabby dewlap hanging from it; the skin thick and the flesh often grained; the hind-quarters full and fat, the tendency being to lay on fat at the rump; and the legs fleshy and deep. The whole animal appears to be somewhat unshapely, but the valuable wool which covers it hides all imperfections.

This affords us quite a vivid picture of the Lincoln sheep of a century ago, and gives us an idea of the foundation stock upon which the breeders of that time had to build in order to effect the improved type which exists today.

The Lincoln sheep are natives of the low, rich pastures of the fenland of Lincolnshire, in middle, eastern England. The great improvements effected upon the Leicester breed by Bakewell and his associates arrested the attention of the Lincoln breeders; and it was with a desire to improve the

fenland sheep that the Lincoln breeders made a study of Bakewell's methods, adopted his system and made selections from his breed to bring about the desired effects in their flocks. The history of the improvement is not without interest, for as has been the case in the development of other breeds, a bitter controversy arose between those who claimed particular merits for the new and those who defended the old Lincoln.

It has been already stated that the improved Leicester was the blood used to bring about the transformation in the carcass of the Lincoln sheep, and made it one of, if not the most, profitable sheep that can be kept for both wool and mutton when rich and abundant pasture is afforded.

Among the early breeders who share the honors of having been instrumental in improving the character of these sheep may be mentioned the Chaplins, Kirkhams, Caswells, Duddings and Clarkes. Then, as now, it was not an easy matter to convince many of their fellow flock owners as to the value of improved blood, and for a long time these men worked raising the standard of their flocks, receiving little, if any, encouragement. There was at that time, too, a great rivalry among breeders, as is shown by a controversy that is recorded as having taken place between Chaplin, the Lincoln breeder, and Bakewell, of Leicester fame. This happened about 1788. Bakewell, interested in the Lincoln breeder's operation, of course, and curious as well to see his breeding stock, asked permission of a lad, who happened to be standing near where Chaplin's sheep were kept, if he might see Chaplin's rams. The lad gave his assent, and Bakewell, acting accordingly, went in and examined them. Chaplin, hearing of this, rebuked Bakewell sharply for having taken this liberty contrary to his wishes.

It was not until after years of skill and patience had been devoted to the work that the breed finally evolved with the improved fixed character that is found in the Lincoln flocks of today. To the names previously mentioned may be added the following who strove towards the same end, and not without their reward. They were the Marshalls, Greethams, Davys, Wrights, Howards, Paddisons, and several others. The result of their competition is, as stated by Professor Coleman, "the production of a sheep unequalled for wool and mutton combined."

For many years the Royal Agricultural Society of England refused a separate class to the improved Lincolns. Not until in 1862, at Battersia, did they receive recognition as a distinct breed, but had to be shown as "Lincolns and other Long-Wools." Between 1862 and 1870 the majority of prizes in the long-wool classes were carried off by Lincolns. Among the most successful exhibitors being Marshall, Dudding, Wright, and Cartwright. At Oxford and Wolverhampton they were again shown on their own merits. Here they exhibited such excellence that the judges commended the whole class.

Along about 1850 the breed became popular through the exhibitions made at the Royal and other shows. In 1864 and 1865, when wool became high priced, there was a great demand for Lincolns to go to Australia, New Zealand, and South Africa, for the purpose of making a desirable cross on the native ewes. Chief among those connected with this foreign trade were Messrs. Marshall and Dudding. After the death of Mr. T. B. Marshall the trade was continued by his son, W. F. Marshall, the owner of the Branston flock.

The improved Lincolns spread over their own and a number of adjoining counties. They also went to parts of Scotland and Ireland.

The first importations to the United States were made in 1836 by Mr. Leonard E. Cleft of Carmel, N. Y. They have increased since that time until now they are distributed in many of the middle and northern states and throughout many parts of Canada. In America the Lincoln breeders have been slow in organizing, and not until 1891 was the American Lincoln Sheep Breeders' Association formed to look after the rights of the breed.

The Lincoln sheep are strong, hardy, and fairly prolific. They are early maturing, when well supplied with good food, and when full grown excel all other breeds in weight of carcass and length of wool staple.

Rams, in good flesh, weight from 275 pounds to 300 pounds, while ewes in like condition average 225 to 250 pounds.

It must be remembered that Lincolns, like other breeds, are adapted to localities similar to those in which they have been developed as a breed, and that under such conditions will they give the most satisfactory results.

The fleece is large, averaging about 12 to 15 pounds of unwashed wool.

LECTURE LXII.

LINCOLNS.

Points to Be Observed in Judging and Selection of the Same.

The Lincoln and the Cotswold are considered the two largest of the long-wooled breeds of sheep. If there is any advantage in size, it is claimed by the Lincolns. The body is large and square when fully matured. These sheep possess wonderfully broad, strong backs and wide, square hindquarters. The body is covered with a heavy fleece of long, lustrous, strong and somewhat coarse wool, which separates into wavy spirals, showing a pink skin. The underside of body should be especially well covered with wool.

The body must take on the form of the mutton sheep, as has been described. Together with form they should show quality and breed type. The head of the Lincoln is broad between the eyes and ears and is scarcely so fine at the nose as is the Leicester. The forehead is covered with a short tuft of wool, while the remainder is bare of wool, but covered with white hair, which is a somewhat darker tinge than that of the Leicester. The ears rather broad, of medium length and dotted. The neck should be evenly blended with head and carried back full to join the shoulders. It is not in a straight line with the body, as is the neck of the Leicester, but is held a little more erect, though lacking the poise characteristic of the Cotswold.

The legs are rather short and strong and should, as in other breeds, possess strong, straight pasterns. They are covered with grayish white hair and in some cases are spotted.

Size, weight, and constitution must also receive the attention of the judge.

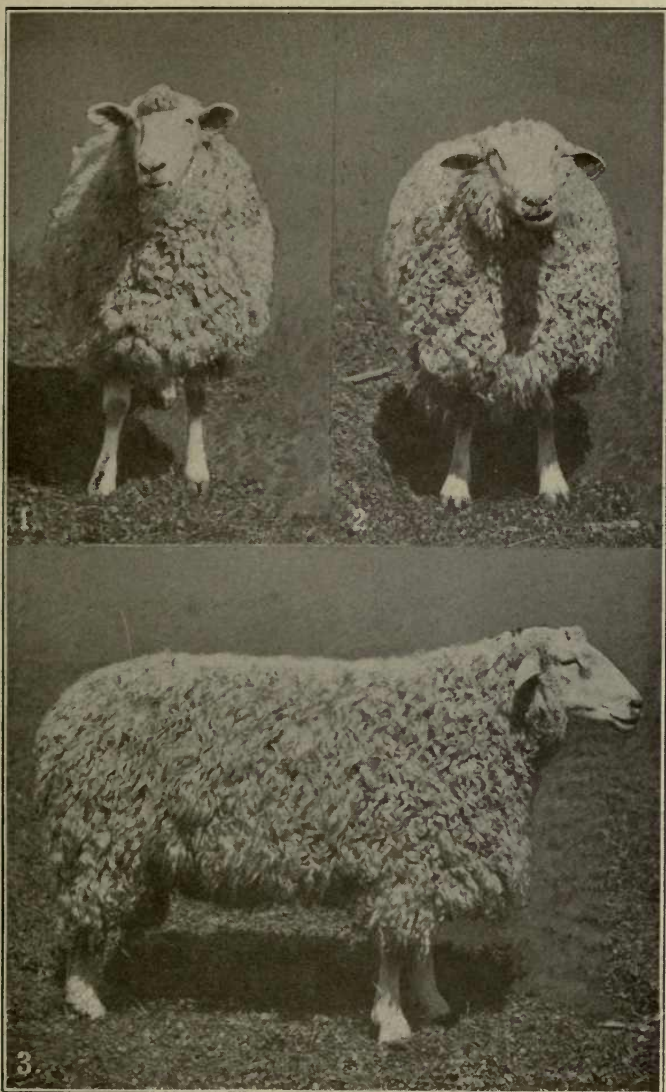


Fig. 45. Lincolns.

1. Front view of Lincoln ewe. 2. Front view of Lincoln ram. 3. Side view of Lincoln ram.

**Standard and Scale of Points of Lincoln Sheep, as Aadopted
by the National Lincoln Sheep Breeders' Asso-
ciation. Vol. 1.**

Points.

Constitution. Body deep, back wide and straight; wide and full in the thigh; bright, large eyes; skin soft and of a pink color	25
Size. Matured rams not less than 250 pounds, when in good condition. Matured ewes not less than 200 pounds.	10
Appearance. Good carriage and symmetry of form.....	10
Body. Well proportioned, good bone and length; broad hindquarters; legs standing well apart; breast wide and deep	15
Head. Should be covered with wool to the ears; tuft on forehead; eyes expressive; ears fair length; dotted or mottled in color.....	10
Neck. Medium length; good muscle; well set on body....	5
Legs. Broad and set well apart; good shape; color white, but some black spots do not disqualify; woolled to the knees	10
Fleece. Of even length and quality over body; not less than 8 inches long for one year's growth.....	10
Quality of Wool. Rather fine, long wool; strong, lustrous fiber; no tendency to cot.....	5
Total	100

LECTURE LXIII.

DORSET HORNS.

Origin, History, and Development.

The Dorset Horns, like other breeds of sheep, are creatures of environment. It would seem from a study of their history that it is possible, by careful selection and mating, together with good care as regards management and feed, to mould a breed of sheep into any form the breed designer would wish.

The original home of the Dorset Horns was on the chalk hills of Dorset and Somerset, two contiguous counties lying in southwestern England between the English Channel and the Bristol Channel. On these hills they lived for centuries, maintaining themselves on the scanty herbage afforded, until about a century ago they were driven from their native grounds by the Southdowns—a somewhat smaller breed more adapted to picking a living on these thinly grassed hillsides. The Dorset Horn of those days was a rather small sheep with black lip and nose and white face, with wide horn. The shoulders were low and light and the legs long and medium fine. The loin was rather wide and full. The fleece was ragged and open. These were the sheep of Dorsetshire.

The sheep of Somerset were a little different in that they were a trifle larger and coarser, with pink lips and nose. Both the Dorsetshire and Somersetshire sheep were noted for their fecundity and milk-producing qualities. The ewes were early breeders, inasmuch as their lambs were dropped in September and October, thus enabling their flockmaster to supply plump lambs for the Christmas markets. It was also claimed for them that they would produce two crops of lambs in a year, and made excellent mothers in that they fed their lambs abundantly, and at the same time made rapid gains themselves, so that when the lambs went to market the ewe, too, was ready for the same, if it were necessary to part with her.

The first improvement effected in this breed was done in west Dorset by a Mr. Richard Seymour, who had the best flock of Dorsets from 1820 to 1840. Following him were Mathew Paull, Compton Pauncefoot, John Pope, John Pittfield, Davys, Wm. Way, and Thomas Chick. These men worked patiently for the breed in their day, and their work was continued by their sons and successors as well as by Messrs. Mayo, Farthing, John and Samuel Kidner, and Culverwell, in the county of Somerset, all of whom deserve credit for bringing the breed before the public.

The method employed in improvement was not that of introducing foreign blood, as has been practiced with some other breeds. The Dorsets have been kept pure, the system followed by their improvers being that of careful selection and mating, and improved food and change of environments.

They now hold an impregnable position in their native counties. In recent years they have been sent to Ireland and Scotland as well as to Canada and the United States, where in both the latter countries they are becoming widely distributed. The Eastern States seem to have a monopoly of these sheep at the present time. Their popularity is increasing, however, in the West, where it is claimed they give excellent results in crossing on Merino ewes. Dorset ewes being good mothers, give good returns when crossed with Shropshire rams.

The Dorset of today is a long bodied, rather rangy sheep, quite symmetrical in form. The breeders are seeking to give him the low down form and character of the mutton sheep, and are endeavoring to clothe him with that evenness of covering characteristic of some of the more pronounced mutton breeds. Dorsets are, as has been stated, a little larger than the Southdowns. The ram in good breeding condition should weigh on an average of 215 pounds, while the ewes average 165 pounds.

Matured sheep shear from 6 to 8 pounds of fine wool, which finds a ready market. Lambs at 6 months give 2½ to 3 pounds wool, which is much in demand.

At the present time there are two associations in the United States championing the cause of the Dorset—the American Dorset Horn Association, established in 1891, and the American Continental Dorset Club, established in 1897.

LECTURE LXIV.

DORSET HORNS.

Points to Be Observed in the Judging and Selection of the Same.

The following is the scale of points of Dorset sheep adopted by the Continental Dorset Club:

	Counts.
Head. Neat, face white, nostrils large, well covered on crown and under jaws with wool.....	5
Horns. Small and gracefully curving forward rather close to jaw	5
Eyes. Prominent and bright.....	2
Ears. Medium size, covered with short white hair.....	2
Neck. Short, symmetrical, strongly set on shoulders, gradually tapering to junction of head.....	5
Shoulders. Broad and full, joining neck forward and chine backward, with no depression at either point (important)	15
Brisket. Wide and full, forward, chest full and deep.....	8
Fore Flank. Quite full, showing little depression behind shoulder	8
Back and Loin. Wide and straight, from which ribs should spring with a fine, circular arch.....	10
Quarters. Wide and full, with mutton extending down to the hocks	10
Belly. Straight on underline.....	3
Fleece. Medium grade, of even quality, presenting a smooth surface and extending over belly and well down on legs	12
General Conformation. Of the mutton type, body moderately long; short, stout legs, placed squarely under body; skin pink, appearance attractive.....	15
Total	100

In making awards in this class of sheep, as in all other classes of live stock, the general appearance and conformation is the first thing which catches the eye of the judge and often goes a long way in helping him to make his decision. In selecting animals for Dorset flocks, it is desired by the best breeders themselves to reject all those that do not approach very closely to the standard of excellence as laid down by the Dorset Club. There is a tendency even yet for the Dorsets to have light shoulders. A ram, especially, should possess a heavy front with smooth, well developed shoulders. Again there is a tendency to thin covering. This is one of the main points upon which the members of the Dorset Club are laying special stress. They want their breeding sheep well covered. The low down, deep, round body—a little longer than the Shropshires—must also be present.

Constitution, form, quality, wool covering, and breed types are essential.

Horns should be present in both sexes, and both the male and the female should possess those marks characteristic of its sex.

LECTURE LXV.

CHEVIOTS.

Origin, History, Development, and Points to Be Observed in Judging and Selection of the Same.

In the northern part of Northumberland, running northeast and southwest, with the Tweed on the east and the Solway on the west, are the Cheviot Hills, which with the rivers mentioned form the boundary line between England and Scotland. Near these hills is Flodden, where James IV. of Scotland and 10,000 of the flower of Scottish nobility were slain. Around these hills, too, is the country known as the Border Land, in which but a few centuries ago the feuds and forays of black-mailers and free booters of the type of Johnnie Armstrong rendered life and property unsafe.

These same hills from time immemorial were inhabited by a hardy breed of white-faced, hornless, long-bodied sheep, with rather light shoulders and covered with short, fine wool. This breed is named after their native hills, the Cheviots. As to their origin, history is almost silent concerning it, as is also the case with the Blackfaces of the Scottish hills. After Drake and Hawkins had disorganized the Spanish Armada in the English Channel, a number of the Spanish vessels tried to reach Spain by sailing through the North Sea around the north and west of Scotland and so reach home in safety. Defeat and disaster were again in store for them on the rocks west of Scotland. Some believe that the Cheviots are descendants of sheep that swam ashore from some of these shattered galleons of the ill-fated Armada. Others think that these sheep are the survivors of a great race of sheep that occupied the Scottish hills centuries ago.

However, it is on the sloping sides of the Cheviot Hills that history first finds them. Here, in their undeveloped state, they wintered and summered on the short, sweet herbage that

clothed the hillsides. Nothing was done towards their improvement until about 1756, when some border farmers, among whom were Mr. James Robson, Mr. John Edmestown, and Mr. Charles Kerr, went to Lincolnshire and procured rams with which they set to work to improve their Cheviot flocks. It is asserted on good authority that the rams they purchased were Bakewell's Leicesters, that were at that time in a state of transition. Whatever these sheep were, they effected a most desirable change in the character of the Cheviots, giving to them a correctness of symmetry and form which they had not heretofore possessed, without impairing their hardiness.

The Cheviots belong to the middle, fine woolled class. Their wool has long been noted because of its superior quality. The Scottish Border is famous for its Cheviot cloth manufactured from the wool of its noted breed. The fleece at one time was somewhat open and uneven. The breeders have done much to improve upon these characters, though even yet the fleece is of an open character. The fleece of the ram averages about 9½ pounds, while that of the ewe goes about 7½ pounds.

In size they are about medium and carry compactly built mutton forms. They are, however, devoid of the covering of adipose fat so characteristic of some of the mutton breeds. Their carcasses rank in first place with the Blackfaces in supplying saddles and legs-of-mutton of the highest quality that tickle the palates of the most fastidious. The ewes make good mothers. In many flocks they have given an increase of 150 per cent., and, being good milkers, they feed their lambs well.

The outdoor life to which the Cheviots have been subjected has given to them a hardiness for withstanding exposure and hardship equaled by none except the Blackfaces.

The Cheviots multiplied very fast and, because of their utility both as wool and mutton producers, became exceedingly popular, and from 1800 to 1860 succeeded in driving the Blackfaces from many of their native hills, forcing them to retire to the bleak heathery hills of Ayrshire, Lanarkshire, Peebleshire, and Roxborough. The Cheviots at length were possessors of nearly all the grassy slopes of Scotland. However, the severe winters from 1860 to 1870 proved a trying time on the Cheviots and forced them to retire a bit, allowing the hardy Blackfaces to peacefully occupy their old haunts and feeding grounds.

In 1838 Robert Young, of Delhi, Delaware County, New York State, first imported Cheviots to the United States. Since that time, on their merits as a breed, they have found a home in many states of the Union, chief of which are Wisconsin, Michigan, Indiana, Texas, Tennessee, West Virginia, Ohio, New York, Iowa, Pennsylvania—and in Canada.

The growing popularity of this breed is due to its many merits. It is one of the handsomest of its tribe. It is hardy and very resistant to disease and intestinal pests. Its utility depends upon its valuable fleece and mutton carcass, the latter of which the ram transmits to his progeny when crossed on other grade or pure-bred ewes.

In 1900 the American Cheviot Sheep Society was organized and incorporated for the purpose of looking after the interests of the breed, and in 1902 the first flock book was published.

In selecting these sheep breed type and, at the same time, individual merit should be given attention. The breeders of this breed of sheep are desirous of maintaining their strong, hardy nature, and to do so they must select for constitution and covering. The following is the scale of points as contained in the Cheviot Sheep Breeders' Flock Book, Vol. 1, 1893:

Counts.

Blood. Pure bred from one or more importations from Scotland	15
Constitution and Quality. Indicated by the form of body; deep and large in breast and through the heart; back wide and straight and well covered with lean meat; wide and full in the thigh; deep in flank; skin soft and pink in color; prominent eyes; healthful countenance. Deficiency of brisket or fish back objectionable.....	20
Size. In fair condition, when full matured, rams should weigh not less than 200 pounds, ewes 150 pounds. (When bred in America. Imported stock: Rams, 125 to 150 pounds; ewes, 100 to 125.).....	10
General Appearance. Good carriage; head well up; elastic movement; showing symmetry of form and uniformity of character throughout.....	10
Body. Well proportioned; small bone; great scale and length; well finished hindquarters; thick back and loins; standing with legs well placed outside; breast wide and prominent in front; tail wide and well covered with wool.	10

Head. Long and broad, and wide between the eyes; ears of medium length and erect; face white, but small black spots on head and ears not objectionable; straight or Roman nose, a white nose objectionable, end of nose dark (but never smut nose on top with black or brown); no tuft of wool on head.....	10
Neck. Medium in length; thick, and well placed on the shoulders	5
Legs and Feet. Short legs, set well apart; color white; no wool on legs; fore legs round, hind legs flat and straight; hoofs black and well shaped.....	5
Covering. Body and belly well covered with fleece of medium length and good quality.....	10
Quality of Wool. Medium; such as is known in market as half combing wool.....	5
Total	100

LECTURE LXVI.

SUFFOLKS.

Origin, History, and Development, and Points to Be Observed in the Judging and Selection of the Same.

The Suffolk sheep is very highly spoken of. It is one of the few survivors of the old Down breeds that inhabited the chalk cliffs of the southern counties of England. The three important original Down breeds being the Southdown, Hampshire Downs, and Suffolk Downs. One of the first and most enthusiastic champions of this breed was a Mr. Dobilo, and to him much credit is due for the improvement made on it by careful crossing and selection.

In order to bring about the desired results, he crossed Southdown rams on Suffolk ewes and vice versa. This was kept up till about 1850, since which no foreign blood has been brought in.

The Suffolk is a very useful sheep and is described as follows by the Suffolk Sheep Society of England: "Head hornless; face black and long, and muzzle reasonably fine, especially in ewes (a small quantity of clear white wool on the forehead not objected to); ears a medium length, black and of fine texture; eyes bright and full; neck moderately long and well set; shoulder broad and oblique; chest deep and wide; back and loin long, level, and well covered; tail broad and well set up; ribs long and well sprung, with a full flank; legs and feet straight and black, with fine and flat bone; woolled to knees and hocks, clean below; fore legs set well apart; hind legs well filled with mutton; belly well covered with wool; fleece moderately short, close fine fiber without tendency to mat or felt together, and no shading off into dark wool or hair; the skin is fine, soft and pink."

In 1859 they were first called Suffolks and were given a separate classification in the show ring. Since this time they have been sent to several foreign countries, where they have given a good account of themselves. In size they are larger

than the Southdowns, Dorsets or Shropshires, and follow very closely on the Hampshires and Oxfords. They possess a good mutton form and the quality of their flesh is rated very high.

The fleece is a little heavier and longer than that of the Southdowns. They graze well on undulating pastures where herbage is not too plentiful. They rate second to Dorsets in prolificacy and are good milkers, hence they feed their lambs well. Being a little leggy themselves they give good results when crossed on ewes of a low-down mutton form.

In 1886 the Suffolk Sheep Society of England was established, and in 1892 the American Suffolk Flock Registry Association was organized with its headquarters at Des Moines, Iowa.

The Suffolks resemble somewhat the, Hampshires; but though the face is black, like their relatives, there is a complete absence of wool until behind the ears is reached.

**Scale of Points. Suffolk Sheep Society Flock Book,
Vol. VII., 1893. England.**

	Counts.
Head. Hornless; face black and long, and muzzle moderately fine, especially in ewes. (A small quantity of clean white wool on the forehead not objected to.) Ears a medium length, black, and fine texture. Eyes bright and full	25
Neck. Moderately long and well set. (In rams stronger, with a good crest.)	5
Shoulder. Broad and oblique.....	5
Chest. Deep and wide.....	5
Back and Loin. Long, level, and well covered with meat and muscle; tail broad and well set up. The ribs long and well sprung, with a full flank.....	20
Legs and Feet. Straight and black, with fine and flat bone. Woolled to knees and hocks, clean below. Fore legs well filled with mutton.....	20
Belly; Also Scrotum of Rams. Well covered with wool...	5
Fleece. Moderately short; close, fine fiber, without tendency to mat or felt together, and well defined, i. e., not shading off into dark wool or hair.....	10
Skin. Fine, soft, and pink color.....	5
Total	100

The Following Scale of Points Was Drawn Up by the American Flock Registry Association in 1892:

	Points.
(1.) General Appearance. Pleasing outline; good carriage and symmetry of development.....	7
(2.) General Form. Large in size; inclined to long in body; medium strength of bone; somewhat cylindrical in shape, and straight above, below and in the rear	15
(3.) Head. Medium in size, inclining to long, and covered with fine, short, glossy black hair to the junction with the neck; a small quantity of clean, white wool on the forehead is not objected to; muzzle moderately fine, especially in ewes; eyes bright and full; ears of medium length and fineness	10
(4.) Neck. Moderately long and well set, and blending well with the body, with some crest in the rams..	5
(5.) Forequarters. Well developed; breast, wide, deep and full; brisket broad; chest, capacious, with good heart girth; shoulders, broad, oblique and well filled in the neck-vein and crops; withers, broad; arm, well developed.....	15
(6.) Barrel. Roomy; back, straight, broad and well fleshed throughout its entire length; ribs, well sprung, and moderately deep; fore and hind flanks full and deep.....	15
(7.) Hindquarters. Long, deep, and full; tail, broad and well set up; buttock, broad; twist, full; thigh, broad and full.....	15
(8.) Feet and Legs. Straight, of medium length, with flat bone; bare of wool below the knee and hock; glossy black in color and set well apart.....	8
(9.) Fleece. Moderately short, with close, fine lustrous fiber and without tendency to mat or felt together, or to shade off into dark or gray wool or hair, especially about the neck and tail. The fleece should cover the whole body except the head and the legs below the knees and hock; and the skin underneath it should be fair, soft and of a pink color.	10
Perfection	100

LECTURE LXVII.

AMERICAN MERINOS.

Origin, History, and Development.

The ancestors of the American Merino were imported to the United States from Spain. It is believed that primarily these sheep came from Syria to Greece, from Greece to Italy, and then were imported to Spain at the time of the Roman conquest.

Hundreds of years before the birth of Christ, Miletus, a Grecian colony in Syria, was celebrated for its woolen fabrics, and from here, history tells us, that both cloths and sheep were taken to Greece.

In 708 B. C. the Greeks settled in Tarentum, Italy, and there they took their sheep. Special mention is made of the fineness of the wool borne by these Tarentine flocks. These Tarentine sheep and those of Spain bear a very strong resemblance in that both are noted for the fineness of their wool as well as the characteristic horns borne only by the rams. Youatt, and other writers are of one opinion that the Spanish Merino is a descendant of the Tarentine flocks of Italy.

During the eighth century the Moors conquered a portion of Spain, and while they occupied the country the sheep industry flourished in their hands. Wool production and wool weaving afforded a great source of revenue to Spain.

Probably the first importation from Spain to the United States was made in 1801 by Seth Adams, who brought over a pair of Merino sheep and took them to his farm at Zanesville, Ohio. In the same year a Merino ram, "Don Pedro," was brought over.

The next year, 1802, Colonel David Humphreys made quite a large importation from Lisbon—seventy ewes and twenty-one rams—which he took to his farm at Derby, Conn. The

ewes he kept; but many of the rams were sold to farmers for the improvement of their flocks.

In 1809 Mr. William Jarvis began importing, and altogether he numbered more than 3,500 sheep of the very best Merino blood he could procure.

These made an excellent foundation upon which to build, and from these importations the Merino fast became scattered over the eastern northern states. Here the soil, climate and feed were admirably suited to these sheep, and improvement was rapid and steady. Merino blood is to be found from the east to the extreme west. There is not a state in the Union but has the mark of the Merino. The American Merino in its purity has been exported to Australia, Africa, and South America. This race of sheep is noted for its valuable fleece of fine wool. A square inch of skin surface bears from 40,000 to 48,000 wool hairs.

The result of the best breeding of this race of sheep has been marked by a continuous improvement. The weight of the carcass has been increased 25 per cent. Its form has been improved in that way by which the yield of fleece has been doubled; the legs have been shortened, and the back broadened at least one-third, the wool producing surface thus being increased, while the density of the wool on the skin is greater. As a wool-bearer this breed has been greatly improved, while the mutton has been made more marketable.

Since wool production is not now the paramount consideration in sheep raising, the Merino is giving place to those breeds that conform to the mutton form.

The Merino is a hardy sheep and is capable of adapting itself to all sorts of environments, and has shown itself very responsive to improved conditions. It is a good grazer on rough, broken land. It is lacking somewhat in early maturity. The mothers are fairly good breeders, but are rather scanty in their milk supply.

They shear by far the finest wool of any sheep in America, and, according to their size, produce the largest fleece.

State associations look after the interests of the breed. This, however, has not been as satisfactory as it might have been, had a central organization had it in charge. More uniformity would thus have been secured.

LECTURE LXVIII.

AMERICAN MERINOS.

Points to Be Observed in the Judging and Selection of the Same.

The American Merino is a medium sized sheep, especially noted for its wool production. The head is rather small and hooded with a wool covering right down to the bridge of the nose, which is white and covered with glossy hair. The head of the ram is decorated with large horns marked with transverse wrinkles. The horns should spring strong and clear from the head and face. The ears are small, pointed and covered with white wool and hair. The neck is small, but gets a massive appearance from the folds of the skin covering it. The chest is broad and deep down between short, strong forelegs. Its form has been much smoothened during its development in America. The shoulders should be broad, round and smooth. A strong level back and loin with good spring of rib is also characteristic of this sheep. Its wool covering must be complete. In examining a Merino fleece be sure to have the sheep turned over on its back so that its armpits and inside flanks may be closely inspected. The Merino should bear wool from its nose right to its hoofs, and some even have wool hairs growing out between their toes.

The fleece should be dense and even, presenting a flat, even pile on the surface. When printed and examined it should be soft to the touch and lustrous to the eye. There should not be a superfluous amount of yolk. Just enough to put the wool in the best condition.

Wrinkles are still in evidence, but the breeders are trying to do away with these as much as possible.

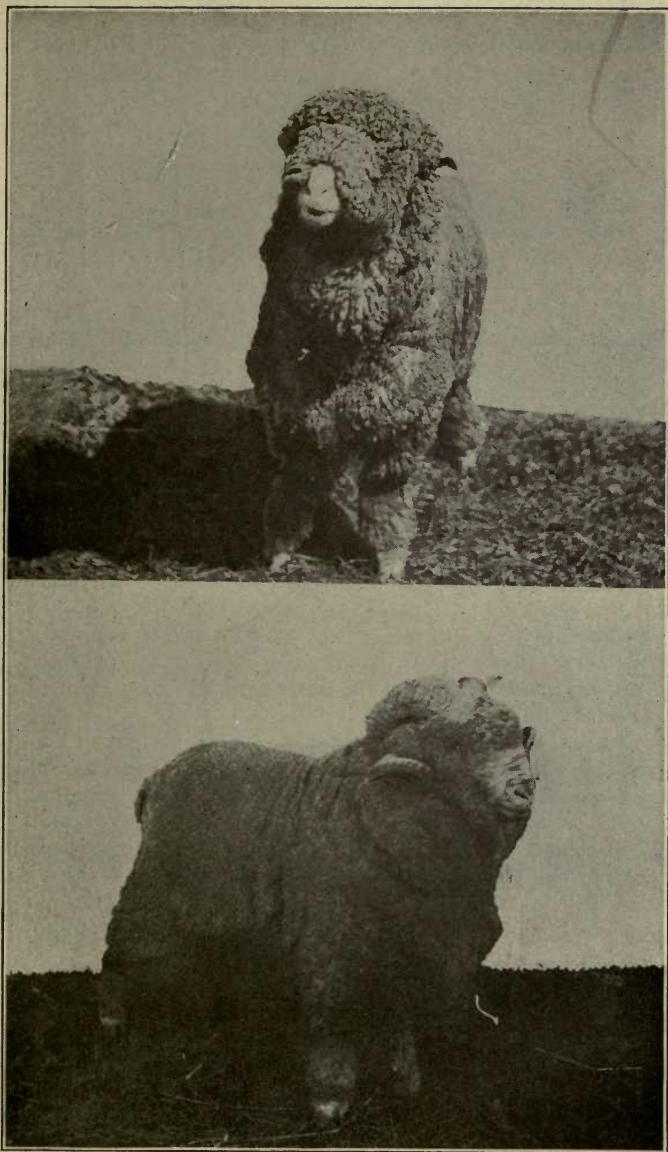


Fig. 47. American Merinos.

1. Front view of American Merino ewe. 2. Side view of American Merino ram.

Description and Scale of Points of American Merino Sheep.
Adopted by the Michigan Merino Sheep Breeders'
Association.

Ram.

Weight. In full fleece, 160 to 185 pounds.

Feet. Sound, level, free from thickness or elongated toes.

Legs. Straight, heavy, well covered and wide apart.

Head. Densely covered for not less than one inch below the eyes; wide between the eyes and ears; horns heavy, uniform, fine grained, with first turn one and a half inches from jaw; ears medium length, thick, velvety, free from tan marks; eyes large, spirited and expressive; nose prominent, velvety, wrinkled, with wide nostrils, and free from specks; lips even and well closed.

Neck. Thick, medium length, heavily folded with pliable skin.

Shoulders. Deep and rising one to two inches above level of back.

Back. Level, broad and well supported by shoulders and hips.

Ribs. Well sprung and extending near to hip bone.

Brisket. Deep, and extending well forward.

Hips. Slightly sloping and arch shaped.

Flank. Deep, with heavy folds.

Fleece. Very dense, fine, evenly crimped its entire length, and the nearer uniform on every part of the body, including folds and extremities, the better. Staple, $2\frac{1}{4}$ to 3 inches in length, measured on sheep at one year's growth. Oil free, buff in color, and evenly distributed. Weight from 25 to 35 pounds.

Folds and Wrinkles. Heavy on neck, and medium about flank and tail; one or two folds back of forelegs, and one or two back of hindlegs, with more or less on hip and belly.

Ewe.

Feet. Same as in ram.

Legs. Same as in ram.

Head. Ears, eyes, nose and lips same as in ram, but more feminine in character, with no semblance of horns.

Neck. Thinner than in the ram and apparently longer.

Shoulders. Thinner than in the ram, with less rise from back and rounder on top.

Back, Brisket, Ribs, and Hips. Same as ram's, with more space between ribs and hips.

Flank. Same as ram's, with less folds.

Fleece. Very dense, finer in crimp and fiber than in the ram, with same uniformity. Oil free, buff, lighter in color and less in quantity than the ram, and evenly distributed. Length of staple, $2\frac{1}{2}$ to $3\frac{1}{2}$ inches. Weight of fleece, 15 to 20 pounds at one year's growth.

Folds. Less prominent than in the ram, and not advisable on sides or back.

Both ram and ewe should be straight on back, stand square on feet, and move with grace and ease.

**Official Score Card of the
Standard American Merino Sheep Breeders' Association.**

	Points.
Constitution	15
1. Bone	5
2. Physical development and general appearance	10
Form	40
3. A broad head, broad, wrinkly nose and face, covered with a soft velvety coat...	5
4. Short, broad, muscular neck, well set on shoulders	5
5. Massiveness of shoulder, as to depth and breadth	5
6. Level, straight back and rotundity of rib..	5
7. Breadth and length of hips.....	5
8. Straight forelegs, well set apart.....	3
9. Straight hindlegs, and set so as to give a perpendicular appearance to hind parts..	5
10. Soft, thick, velvety ear.....	2
11. Pure white nose, ears and hoofs.....	5
Wrinkles	15
12. Heavy, pedulous neck.....	5
13. Across arm and point of shoulder on side, and running well under.....	5
14. Tail, hip-folds and flank.....	5

Modified for Delaine Ram Yielding a Staple of
2¾ Inches and Upward.

12.	A deep gullet and heavy cross at brisket..	5
13.	Heavy flank with fold extending upward on side and back of shoulder.....	5
14.	Heavy tail	5
Density of Fleece		15
15.	On neck	3
16.	On back	3
17.	On side	3
18.	On hip and extending to flank.....	3
19.	On belly	3
Covering		15
20.	Crown of head or cap.....	3
21.	Cheek	2
22.	Fore leg	2
23.	Arm pit	2
24.	Hind leg	2
25.	Inside of flank.....	3
26.	Connection between tag wool and belly....	1

Total100

Fiber to be indicated as "fine," "medium," and "coarse."
Oil, as "buff" and "white."

LECTURE LXIX.

RAMBOUILLETS.

Origin, History, and Development.

The Rambouillet is an off-shoot of the Spanish Merino. As early as 1721 some Merino sheep were brought into France. From that time on till 1786 there were occasional small importations. But in 1786 King Louis XVI. himself became interested and with the aid of the Spanish government secured 366 of the best blooded Spanish Merino sheep that could be obtained. This number consisted of 318 ewes, 41 rams and 7 wethers. These he took to his estate at Rambouillet, near Paris, where they were put under the best of management. No sheep were sold from the increasing flock for a long time, but careful methods of breeding, selection and feeding were observed. During the French Revolution and Period of Reconstruction the flock was not altogether neglected. After this trying period, however, more attention could be given them.

In 1834 the French people imported rams of the large English breeds to cross upon their small native ewes. Their cross was being effected to produce, if possible, a carcass more suitable for mutton purposes.

The managers of the Rambouillet flock, seeing that size was wanted, made an effort to select and breed for size, but at the same time they kept their blood free from foreign infusion. The larger mutton form which they obtained as the reward of their efforts was accompanied by a diminution of fleece as well as a weakness of constitution and a lack of that ruggedness necessary to withstand hardships. Perceiving this in time they bred back again to the old Negretti type, and by the year 1867 their flocks were restored to their former usefulness.

In 1840 the Rambouillet was first brought to America; this importation being made by D. C. Collins of Hartford, Conn., who succeeded in obtaining two rams and twenty ewes. Mr. John A. Tainter in 1846 imported two rams and seven ewes to Connecticut and afterwards sold them to A. L. Bringham of Cornwall, Vermont. These sheep were not popular at first and it was not until 1890 that it was necessary to form an association, but in that year the Rambouillet Association was organized to look after the interests of the breed.

The Rambouillet is a large sheep possessing a good mutton carcass. The flesh, owing to improved methods of feeding, is of good quality—a great improvement upon the old Spanish Merino, but still not up to that of the mutton breeds. It has a long, close, heavy fleece of fine quality wool. It is a good grazer and gives good results in crossing where size and wool covering are desired, but for mutton it is not a desirable cross to make. Many Rambouillet rams have been used on the western ranges to give vigor and stamina to the lambs, and to clothe them with a good fleece to enable them to withstand hardships and exposure.

LECTURE LXX.

RAMBOUILLETS.

Points to Be Observed in the Judging and Selection of the Same.

In judging the Rambouillet we look for a larger, smoother sheep than the American. By smoother we mean an absence of wrinkles. He is taller, heavier, stronger limbed, and somewhat more rangy. He possesses a better mutton form clothed with a longer fleece, though not quite so dense, yet freer from yolk and superfluous grease.

In the absence of a Scale of Points we quote the following Points of Excellence from Professor Shaw:

(1.) **Size.** Medium for the breed, but considerably larger than in any of the other Merino families.

(2.) **General Outline.** Large, strong of limb, and at least fairly even and smooth.

(3.) **Head.** Medium in size, wide at the poll and somewhat fine at the muzzle.

(a.) It is completely covered with dense wool, except for a short distance from the muzzle upward.

(b.) Eye, large and clear, though closely surrounded with wool.

(c.) Ears, inclining to short, with outward and slightly upward erection and covered with fine hair.

(d.) Horns, in the male only, which, on leaving the poll, make a backward, downward and forward semi-circle curve, and then circle outward at the tips.

(4.) **Neck.** Inclining to short and deep.

(a.) It should blend evenly into the shoulders.

(b.) Excessive dewlap and throatiness are to be guarded against.

(5.) **Back.** Broad, straight and of even width.

(a.) Withers, wide and not sharp or elevated, as they sometimes are.

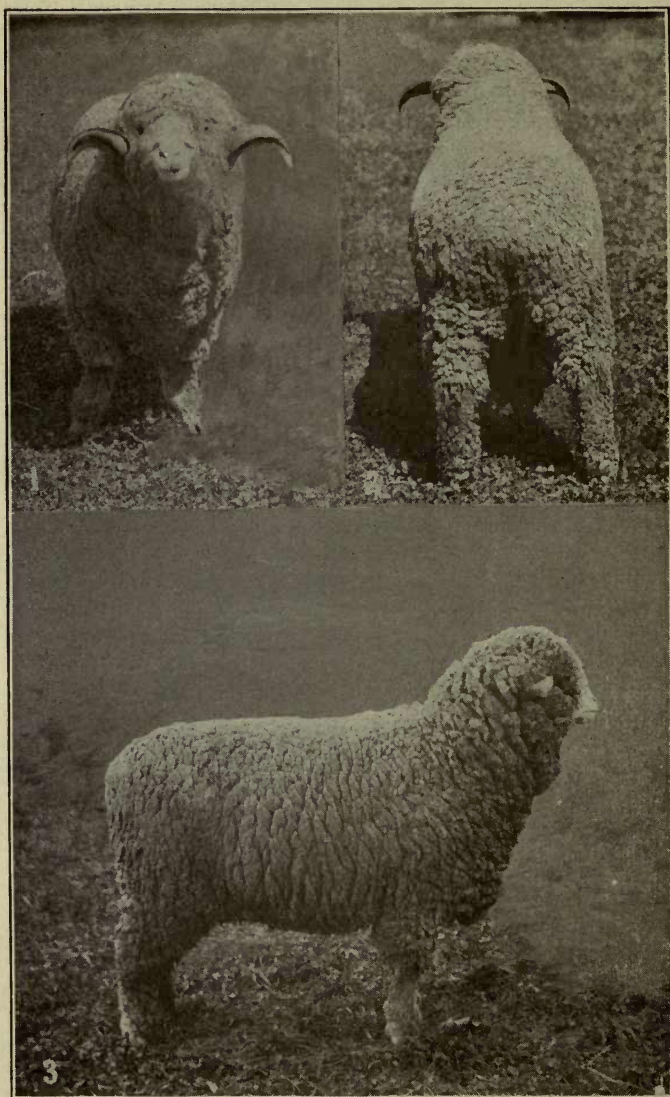


Fig. 47. Rambouillets.

1. Front view of Rambouillet ram. 2. Rear view of Rambouillet ram.
3. Side view of Rambouillet ewe.

- (b.) Loin, wide, strong.
- (c.) Pelvic arch, not elevated.
- (6.) **Forequarters.** Fully equal to the hindquarters in development.
 - (a.) Shoulders, well rounded out, and not rough at the points.
 - (b.) Chest, wide and deep.
 - (c.) Breast, wide, well forward and carrying one or more folds or wrinkles, especially in the rams.
 - (d.) Brisket, wide.
 - (e.) Forearm, strong and well muscled.
 - (7.) **Barrel.** Deep, inclining to long, but not really rangy.
 - (a.) Ribs, deep and rounded rather than downward in their spring.
 - (b.) Crops, level and not sunken as they sometimes are.
 - (c.) Fore and hind flanks, well down and full.
 - (d.) Girth at heart and hind flank, good and about even.
 - (e.) Underline, straight.
 - (8.) **Hindquarters.** Long, wide, deep, square behind.
 - (a.) Hips, large and rounded on the side rather than sloping.
 - (b.) Crupper, creased, and possessed of moderate and gradual downward slope.
 - (c.) Thighs, broad and full.
 - (d.) Twist, well down and full.
 - (9.) **Legs.** Strong, straight and of but moderate length.
 - (a.) They should be placed well under the body and wide apart.
 - (b.) Too much of length is to be guarded against.
 - (10.) **Fleece.** Long, fine, even in length and quality and dense.
 - (a.) The fiber should be strong, elastic, beautifully crimped, not less than four inches long at one year, and should stand at right angles to the body.
 - (b.) When opened it should present a bright, lustrous, oily appearance.
 - (c.) While the yolk or oil should be abundant, flakes and scurf should be absent.
 - (d.) It should cover every part except for a short distance above the muzzle, the eyes and ears, and below the fetlock.
 - (e.) Skin, pinkish or flesh-colored.

LECTURE LXXI.

DELAINE MERINOS.

Origin, History, and Development.

The Delaine Merino is an American production, an off-shoot from the American Merino—the result of careful breeding, selection, and feeding to a definite end. It is the successful outcome of efforts put forth by a number of breeders chiefly in Ohio and Pennsylvania.

The end these breeders had in view was to produce and fix the type of a breed of Merinos that would possess a smooth, strong, deep, wide, somewhat larger mutton form than that of the American Merino; to free it from wrinkles, and to lengthen the staple and increase the weight of fleece. All this they have accomplished without in any way deteriorating the value of the sheep.

The Delaine Merino gets its name from the cloths that are manufactured from its wool. These are known as Delaine dress goods. Formerly these goods were made all of wool, but now a cotton warp is used with a woolen woof.

There are several Delaine breeds, three of which, the Standard, Delaine, National Delaine, and the Improved Delaine, have associations established to guard their interests.

These sheep are larger, smoother, and possess better mutton forms than the American Merino. The bodies are free from wrinkles, though some of them still wear these adornments about their necks and on their breasts. They have a fleece equally as heavy but excelling that of the American Merino in length of staple and scouring qualities in that it possesses less yolk.

Being larger sheep than the American Merino, they require better pasture grounds. In maturing qualities they are me-

dium, being better than the American Merino, but not so good, as the Down breeds.

Their mutton is of good quality, having no superior among the other Merino families. The breeding qualities of these sheep have been improved, too, so that the Delaine Merino excels its parent stock in the production, both of lambs and milk.

These Delaine families are a very striking example of the improvements that may be wrought upon our animals by patient, careful, thoughtful breeding, selection, feeding, and management.

LECTURE LXXII.

DELAINE MERINOS.

Points to Be Observed in the Judging and Selection of the Same.

"The Delaine Merino is compact and strong in build, nearly free from wrinkles and folds, covered with an even and abundant fleece of wool, dark in color on the outside, and possessed of a vigorous style and easy carriage." The judge should give close attention to outward appearance as described above. A close examination should then follow to ascertain its flesh qualities and wool covering underneath in arm-pits and flanks as described for judging American Merinos. Form, size, quality, condition, constitution and breed type must command the attention of the judge.

Select a ram that is strong in masculinity. In Delane Merinos the rams have horns and more or less of wrinkles on the neck and breast. The Black Top Merinos have horns in rams, but no wrinkles, while the Dickinson Merinos have no horns or wrinkles, and they possess more size and length of fleece.

Scale of Points Adopted by the Standard Delaine Spanish Merino Register.

	Points.
Pure Merino Blood. Which must be established by certificate.	
Constitution. Indicated by a deep chest, long rib well arched, giving heart and lung room, with great digestive capacity	20
Fleece. XX and Delaine wool. This includes the quantity and quality as shown by weight of fleece, the length and strength of staple, crimp, fineness and trueness of fiber..	10

Density of Fleece.	3
Evenness of Surface.	3
Evenness of Crimp.	3
Length of Fiber.	2
Free Flowing Oil. Of the best quality and the right quantity to protect the sheep and preserve the fleece.....	9
Head. Medium size. Ewes showing a feminine appearance; rams, a masculine, with properly turned horns...	4
Eyes. Bright, prominent and well set apart, with a thick, soft eyelid	3
Nose. Short, broad, with well expanded nostrils, skin thick and covered with thick, furry coating, joining the wool one inch below the eye.....	4
Ears. Medium size, set well apart, thickly coated.....	2
Neck. Short on top, deep and strongly attached to shoulders, tapering to head; rams with a fold across the breast, and deep neck.....	4
Fleece. Covering over the entire body, head and legs, skin thick and spongy.....	4
Legs. Short, strong and well apart.....	2
Feet. Neatly shaped, thin hoof, well set under the leg....	4
Quarters. Deep and well rounded; back, broad, straight and strongly coupled to quarters.....	10
Weight. Ewes at maturity, 100 pounds and above; rams, 150 and above.....	8
General Appearance. Good carriage, bold and vigorous style, symmetrical form.....	5
Total	100

Any sheep scaling below 60 per cent. in any point cannot be recorded.

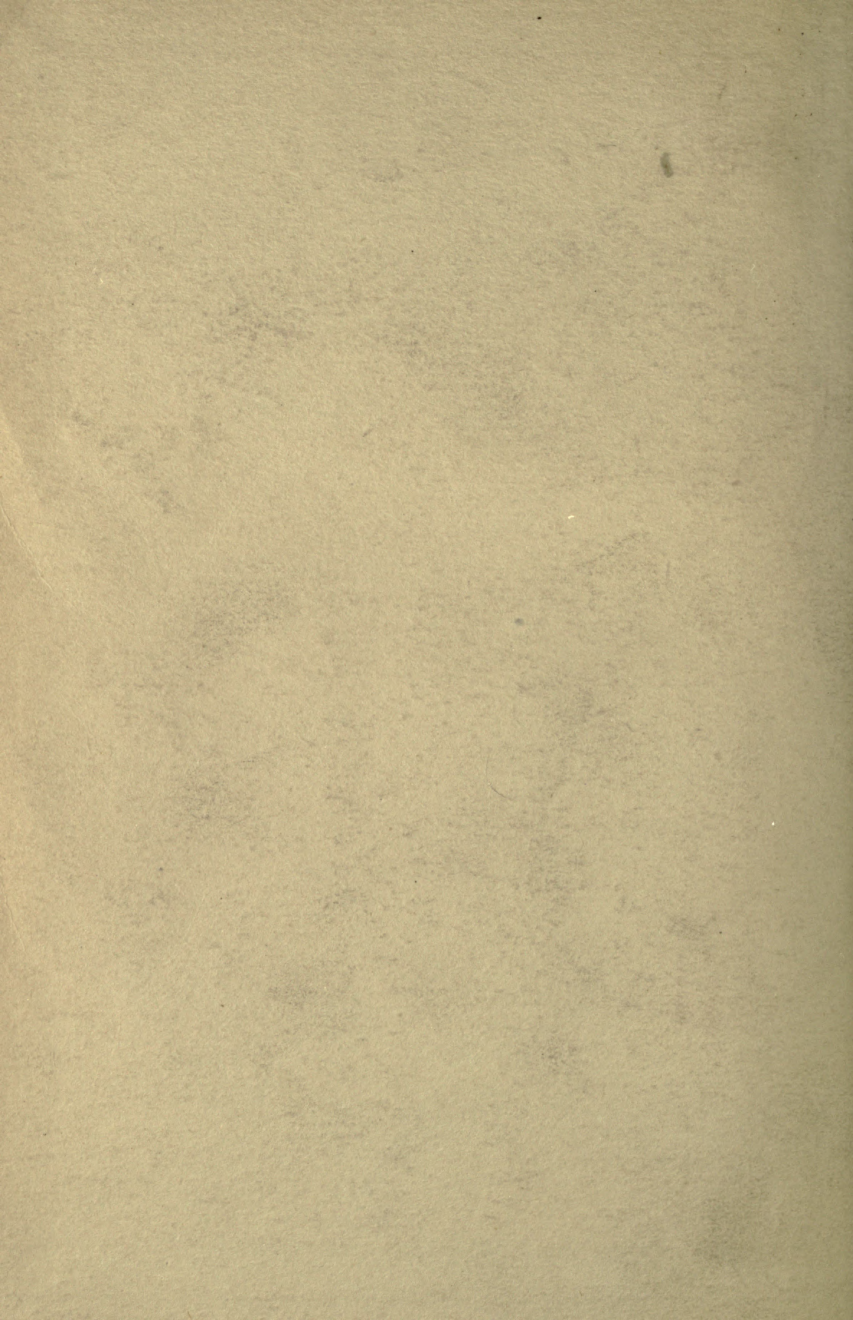
Scale of Points. Black Top Spanish Merino Sheep Register,
Vol. III., 1891.

Counts.

Blood. Purely bred from the Humphrey importation of Merino sheep from Spain, in the year 1802, as bred by W. R. Dickinson, of Steubenville, Ohio.....

Constitution. Indicated by physical development; deep and large in the breast and through the heart; broad back; very heavy square quarters; skin of fine texture, and pinkish in color; expansive nostril; brilliant eye; health-

ful countenance and good feeders.....	15
Size. In good condition, with fleece of five months' growth, full grown rams should weigh not less than 175 pounds, and ewes not less than 120 pounds.....	15
General Appearance. Head carried well up; standing squarely on feet and legs; well rounded body, showing in all points symmetry of form.....	3
Body. Throughout heavy boned; well proportioned in length; smooth joints; ribs starting horizontally from the back bone, and well around the breast bone; breast bone wide, strong and prominent in front; strong, straight and heavy back bone; heavy muscular quarters, deep through and squarely formed before and behind; shoulders broad and flat, and not projecting sharply above the back bone; muscles firm and heavy, and body entirely free from folds. There may be a slight throatiness, and a small dewlap—smaller on the ewes than on the rams..	15
Head. Wide, medium in length, eyes clear and bright, prominent ears, medium in size and covered with soft fur. Ewes should give no appearance of horns, while upon the rams the horns should be well developed, clear in color, and symmetrically curved, without tendency to extreme expansion	5
Neck. Medium in length and very heavy, especially with the rams, deepening towards the shoulder.....	4
Legs and Feet. Legs medium in length, set well apart, medium bone and smooth joints. The feet must be well shaped, medium sized, firm and solid.....	10
Covering. Evenness of fleece and crimp; body and legs covered to the knees; head covered forward between the eyes; the surface should be free from hair or gare.....	8
Quality. Medium or fine, such as is known in the market as fine Delaine.....	7
Density. Shown by compactness of fleece, which should open freely, and have no tendency to be stringy or knotty	7
Length. At twelve months, growth must be not less than three inches, and as near as may be of uniform length..	8
Oil. Evenly distributed, white, soft and flowing freely from skin to surface, forming on the exterior a uniform dark coating	6
Total	100



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